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ELEMENTS OF DESIGN.

Book First.

FOR THE USE OF PARENTS AND TEACHERS.

By W. RIMMER.

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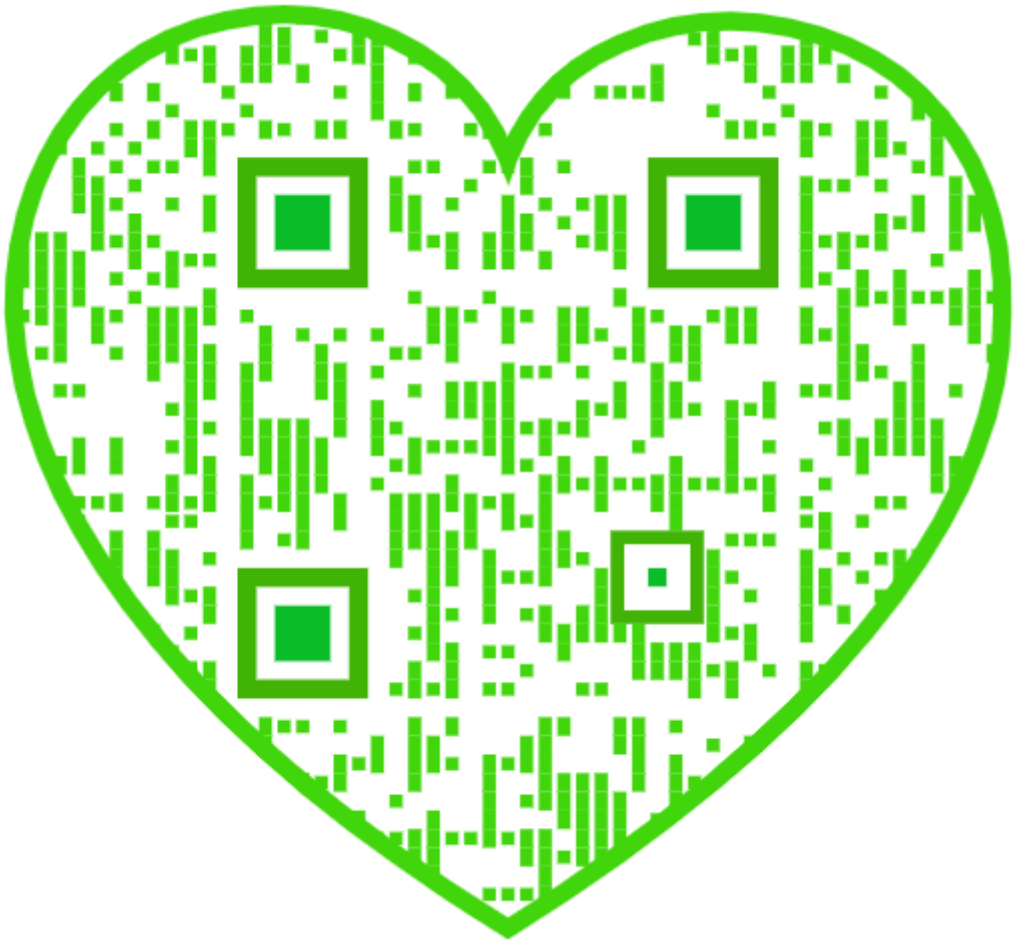

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By W. RIMMER.

BOSTON:
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INTRODUCTORY NOTE.

BY J. E. CABOT.

[These prefatory remarks were written down at Dr. Rimmer's request, and are now printed by his wish, as indicating, in a general way, his intention in the treatise of which this volume is a part.]

THE object of the following pages is to exemplify in its rudiments a method of teaching to draw, which is founded on the idea that Drawing does not signify merely an imitation of forms, but that it aims mainly to reproduce expression, — the effect that immediately results from the sight of the object, and seems to belong to it primarily, irrespective of use, association, or other secondary or imparted value. Of course, the first requisite is an ability to *feel* expression, — a sense for the dumb language of lines and surfaces. The eye is not of itself enough for seeing, any more than the hand is enough for drawing.

All art, from the most rudimentary attempts, presupposes this higher sense to be to some extent awakened; and it is to the interest thus created that it appeals. But the sense may exist, and may be sufficiently developed to be recognized as the source of an occasional satisfaction more or less vivid, and yet remain vague and dim, like the vision of those animals whose eyes are covered by a membrane that permits

only the general sensation of light, and perhaps of the direction whence it comes, but no distinct seeing. This is the common case. In the absence of special gifts and of training, direct or indirect, the sense of natural beauty in most persons remains dormant, and recovers its normal action only momentarily, by accident, or when some extraordinary appeal is made to it: so that what should be a daily refreshment, as much a part of every man's life as his meals or his rest, is regarded as an exotic luxury, a superfluous garnish, not as any substantial reality.

But Sight is the noblest of the senses. Any thing that helps to perfect it really enlarges the world for us; for what passes unnoticed, might, as far as we are concerned, as well not exist. It is the cheapest and most wholesome of pleasures, subject to no drawback or impediment, out of reach of no position or condition of life; nor need the amount of training which is of the most general importance be difficult of attainment to any one in this community. Every boy and girl of healthy taste likes to learn to draw; and the time and means necessary could be found for all, were elementary instruction steadily directed to what is essential, and freed from unnecessary complication with what is at best extraneous. The trouble is, that Drawing, with pupils and with teachers, too often means picture-making, — the production by any means, the speedier the better, of something that shall be thought pretty to look at; a notion tolerably sure to extinguish any ordinary amount of ability. The short-cut to picture-making is copying; that is, the substitution of another person's conception and rendering of expression and effect, at the fourth or the hundredth remove, for one's own: and the result is necessarily a vapid mannerism in those who are content passively to accept what is put before them, and

weariness and disgust to the stronger natures who are vaguely conscious of a capacity for something more, or at least are restless under a course of purposeless trifling. Ability to draw is ability first of all to see what is to be drawn: not by any means all the lines that exist, even in the simplest subject, but only those that tell the story; that fix the form for what it is, and separate it from what it is not. The acquisition of this ability is not furthered but impeded by foregoing all occasion for its exercise, and accepting the result at second-hand.

As the art of Drawing is primarily the art of seeing, the main point is rightly-directed attention, — an attention that knows not merely what to see, but what to overlook and omit. The skilful eye is careful of hair's breadths, and careless of inches: follows at one time with breathless intentness the minutest curve of line or surface; at another, condenses, omits, or even contradicts. It may do always whatever it has reason to do.

This is one of the lessons of Greek art. The Greek sculpture cannot be defended for accuracy; but the very inaccuracies more strongly emphasize the broad, unerring perception of vital truth.

Thus a systematic instruction in the elements of Drawing, so far from being useful only or especially to the artist, is even more important to those to whom it is only a part of general culture. Not that study is less important to the artist, but that his nature brings with it a predetermination which prevents him from wasting his forces upon what has no existence to art. To others, this bias must be supplied by a careful training of the attention to perceive the *meaning* of forms in nature, and to perceive nothing else; to omit every line in which no meaning is seen. There can be no harm to

any one in this; for, whether there be any meaning *there* or not, unless it is instinctively felt, any attempt to render the form will only falsify it. There is no danger that mannerism will be the result; for mannerism comes from thoughtless repetition. It must be always safe at least to be silent.

Instruction of the kind here proposed must seek first of all to avoid confusion of aim. The greater simplicity it can give to its procedures, the more unambitious the treatment, and the fewer the objects, the better. To this end, the human form, reduced at first to its simplest elements, has been selected as most conveniently illustrating the principles here set forth; since it is this, which, in the smallest compass, contains the greatest amount and variety of expression. To it, accordingly, the author has, at the outset, confined his examples. What he offers is not a new set of patterns to be copied, nor a short-cut to the drawing of the human figure, but a contribution towards a method of teaching that shall apply to Drawing the same fundamental principle universally adopted in the teaching of elementary science; not to make it easy by making it insignificant, but by making clear the essential principles at the outset, and holding them fast to the end: only rendering access easier at the first by reducing them to their simplest and most rudimentary expression. In short, what he aims at is a Drawing-primer; and he would look upon it as the best proof of success, should it find its way, with the reading-primer and the first lessons in arithmetic, into the hands of school-teachers and of mothers, for daily use as a regular part of elementary instruction.

ELEMENTS OF DESIGN.

PART I.

VERTICAL ELEMENTS.

SECTION I. — *Single Lines.*

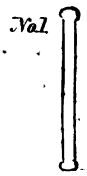
THE teacher must explain that a stick will stand, if balanced on one end, as in drawing No. 1, Pl. 1; but that, if not so balanced, it will fall, as in No. 2, unless another stick is placed in front, as in No. 3; and that, the farther the first leans, the more the second must lean to keep it up, as in No. 4; that the upper part, *a*, must be called the body, and the two lower parts, *b*, *c*, the legs, as in No. 5; that the legs must be in two pieces, as in No. 6, because legs are in two pieces; and that these pieces can bend at the knee, as in No. 7; and then, that if two other pieces are attached near the top of the stick, with joints in them, as in No. 8, the stick will look like a man; that the round ball on the top of the stick must be called the head, and the part between that and the shoulders the neck, and so on, as in the following drawings: —

Then, that the body, thigh, and leg sections should be of equal length. The reason to be given for this should be, that the parts, if longer or shorter relatively, would not look so well. Then a front figure should be made, F; and a side figure, G, Pl. 2.

The heel and elbow must project as in these plans. To make the subject as easy as possible for children, in the first series (that is, in figures made with single lines), the arms and legs should be attached at once to the middle or body line, as in figures F and G. The elbow should reach almost to the hip in first series of drawings; and the hand, *h*, to half-way down the thigh. When it is intended that a figure should walk, both feet should be kept upon the ground. The reason for this is, that, when walking, we only step (that is, extend our limbs), without springing from the ground; not lifting the foot behind till the one before is placed in readiness to give support; and hence the moment of time most favorable for representing the act, and the only one in which the position of the limbs with reference to the velocity or obliquity of the falling body can be at all described, is when one is put forward for support, and the other is still extended with a propelling effort.

The following drawings will serve to illustrate the point: — .

Part 1st. Section 1st.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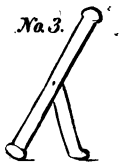
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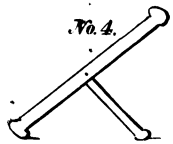
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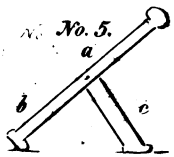

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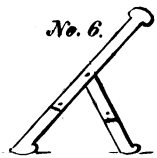
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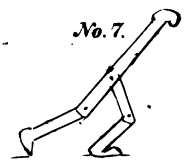
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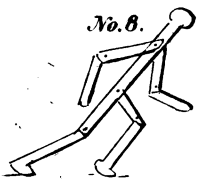
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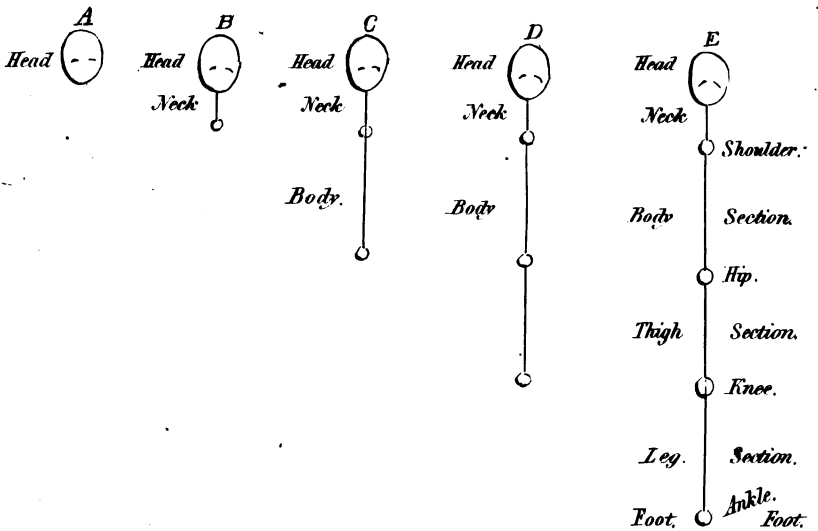
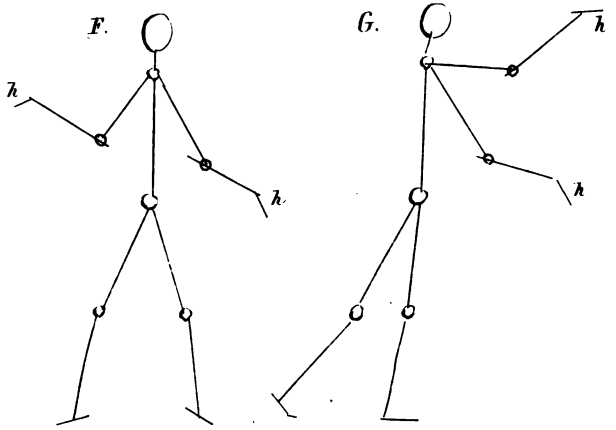
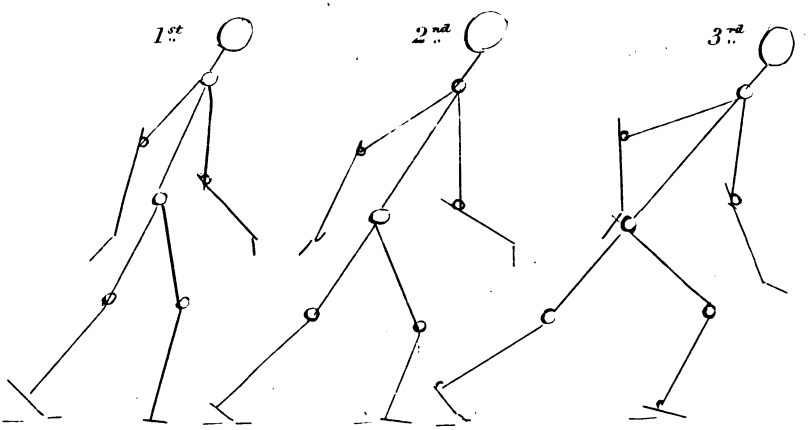
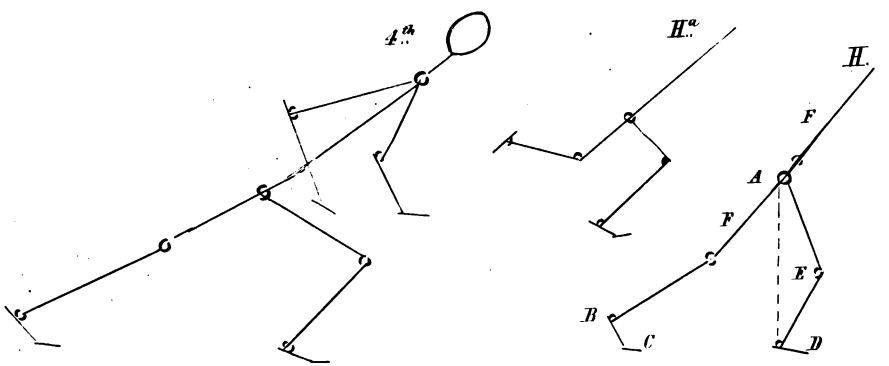




Section 2d *Degrees of Velocity – Walking.*





SECTION II., Pl. 2. — *Degrees of Velocity.*

Let it be observed, that, as the velocity increases (that is, the obliquity of the body, which represents it), the legs are placed farther and farther apart in each degree, — the one to push the body along, and the other to keep it from falling; and that besides, in walking, the foot pressed forward for support is always something in advance of the hip, as seen in Plans 1, 2, 3, 4, while the extended thigh behind is on a line with the body; and that the heel (see F and G, Section 1) is lifted from the ground, as in Plan H, Pl. 2.

A, the hip; B, the heel of extended foot; C, the toes, continuing the propelling effort; D, the supporting foot; E, a vertical line, showing that the latter is in advance of the hip; F, the line of the back and thigh.

When it is intended to describe a figure in the act of running, only one foot, the supporting one, should be placed upon the ground, as in H*a*.

As walking is a gliding effort or motion by which only as much ground is passed over as can be compassed by merely extending the limbs (as in Figs. 1, 2, 3, 4, section second), so running is an effort by which it is intended to pass over more ground than can be compassed by such mere extension, which, from the nature of the case, can only be effected by springing from the ground; and the effort or discharge of the body from the extended limb is best described at the moment when that limb has just completed its task, and throws the body forward on to the recovering foot. (See Fig. 2, 1 to 5), Pl. 3.

The positions 4 and 5 represent sudden and hasty flight. Practised runners try to preserve an upright position, that the arms may be kept close to the side, and that they may breathe with the greatest freedom possible.

Vertical Position.

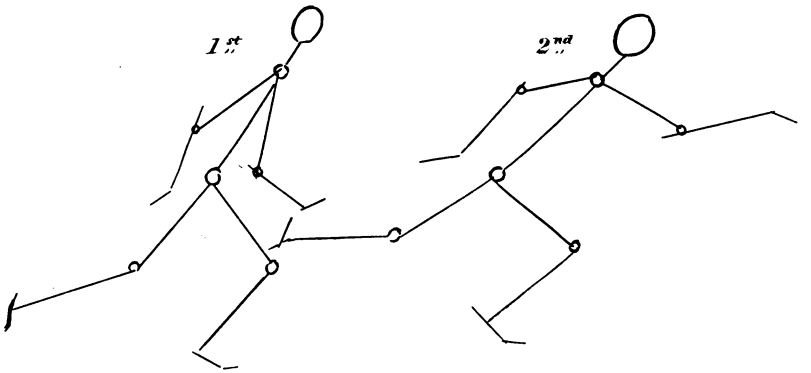
It will be observed in the running figures (1 to 5) that the heel is *behind* the hip, and that the thigh of the extended leg is pressed back beyond the line of the body. In the vertical position (6), the heel is before the hip.

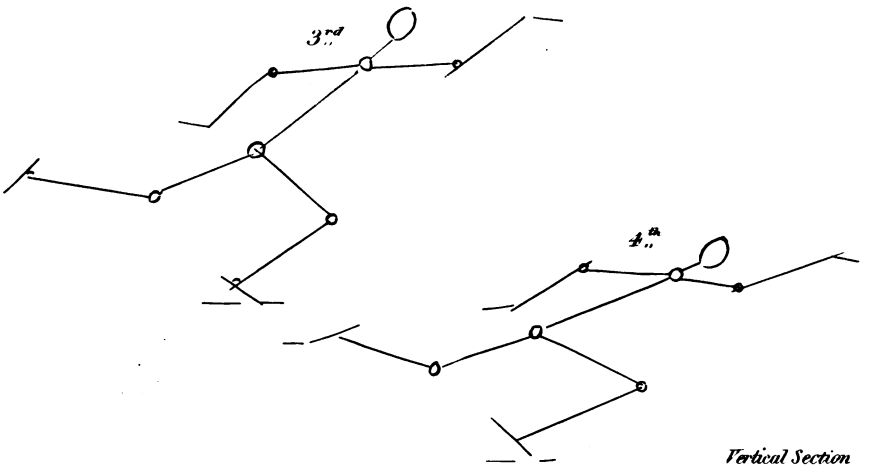
In walking, the motion is best described to the eye when both feet are upon the ground; though, for the greater part of the time, the body rests upon one foot alone. In running, the motion is best described when one foot is upon the ground, though for much of the time the body is in flight, and both feet are in the air; and after running, which is a continuous effort, and which may, like walking, be indefinitely prolonged, comes leaping, which can only be continued for a few moments; and then follows jumping, which accomplishes all and exhausts all at a single bound. Leaping is the same as running, with the difference, that the body is so long in the air that we can perceive its form; and, while it resembles jumping by being above the ground, it also resembles running in the position of the limbs.

Leaping, I., Pl. 4.

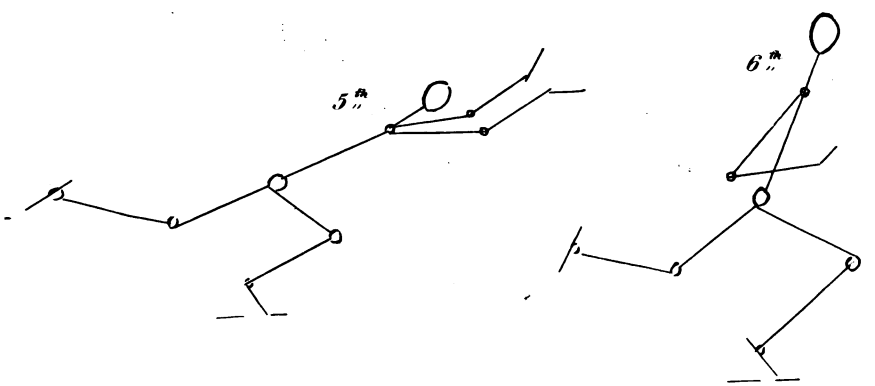
As one who leaps must be prepared for his next effort, his limbs must be held ready for it; but, as the jumper cares only to alight with safety, he tries to preserve his poise by gathering his feet beneath him.

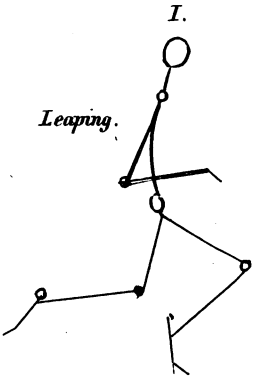
Section 3d Running – Degrees of Velocity.

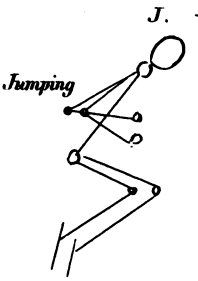


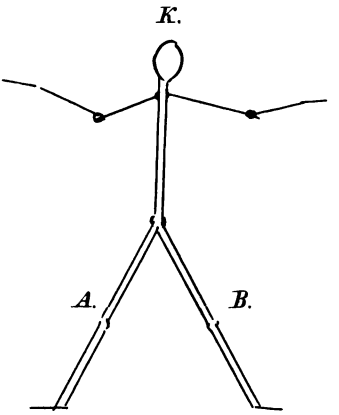


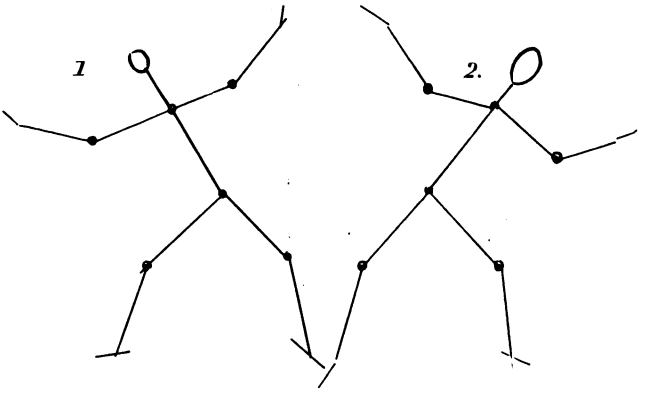
Vertical Section




I.
Leaping.


J.
Jumping


K.
A.
B.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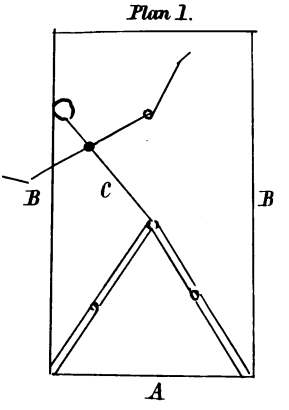
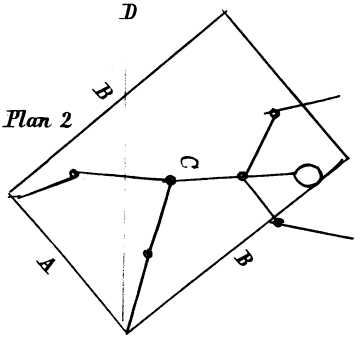
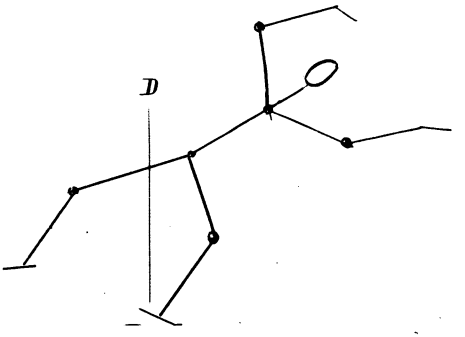

Plan 1.
B
C
B
A


D
B
Plan 2
C
A
B


D

SECTION III., Pl. 4. — *Jumping.*

The teacher must next explain that a stick will stand not only when balanced on one end, but also when supported on each side, as in the next illustration (K by A and B, the right and left supports); and, farther, that the body may be bent at the hips, so as to bring the head over either foot, as in Figs. 1 and 2, and yet maintain an upright position, because the weight of the body is within the line of support, as seen in the following plan: —

Plan 1.

A, the bottom of the box or parallelogram; B, the sides; C, the body within the lines of support. But if the body is bent or slanted beyond the line of support, then, there being nothing to keep it up, it must come to the ground, as shown in —

Plan 2.

A, B, C, as in Plan 1; D, a vertical line, showing that the weight of the box and the weight of the man are beyond the line of support.

The points of support are further explained in the following figure: —

No. 1, Pl. 5, a kneeling figure leaning back, making it necessary that the support should be given behind; A, the supporting foot.

No. 2, a figure without the supporting foot; A, B, a vertical line, showing that the weight of the body is beyond the line of support, and consequently that it could not maintain an upright position.

No. 3, a dancing figure: A, the point of support; B, a vertical line, showing that the body is within that line, and can stand till received upon the other point; C, the extended foot.

No. 4, a creeping figure; the support divided between the hands and knees.

No. 5, a sitting figure, leaning forward: B, the stool, the principal point of support; A, the foot extended to receive the leaning body.

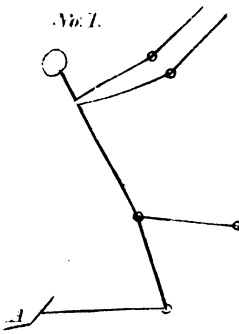
No. 6, the same position of body, supported by the extension of one arm over the back of the chair; A, the feet; and B, the leg of the chair beyond the line of support, C.

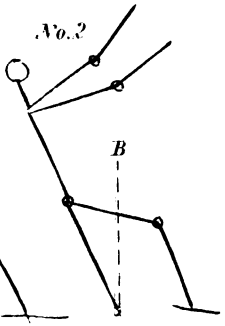
No. 7, a leaning body, supporting itself by connecting the weight of the shoulders on one side of the line A with the weight of the leg on the other side of the same line, by folding the hands about the uplifted knee, and putting the toe of that leg behind the calf of the one resting upon the floor.

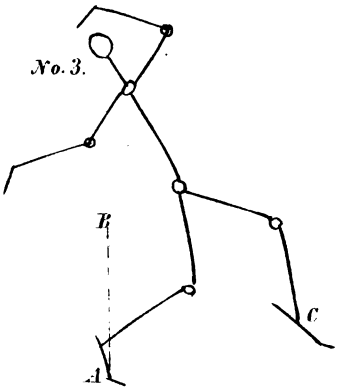
Nos. 8, 9, the same rule will apply here as in Figs. 1 and 2; this section, A and B, being the right and left support.

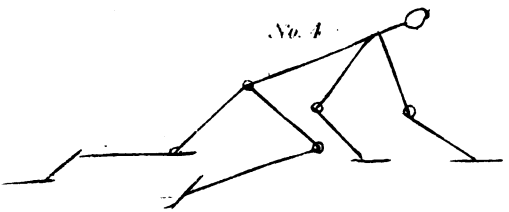
Bent Bodies. No. 11, Pl. 5; 12, 13, 14, Pl. 6.

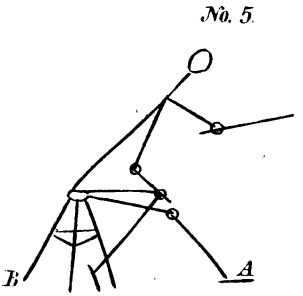
Let the teacher explain the action, and point out the points of support, in Figs. 10 to 15.

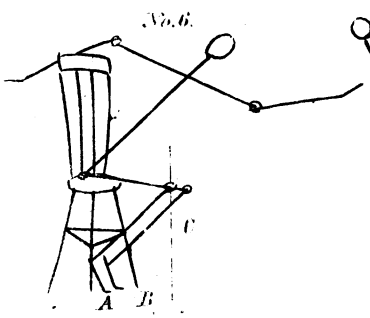


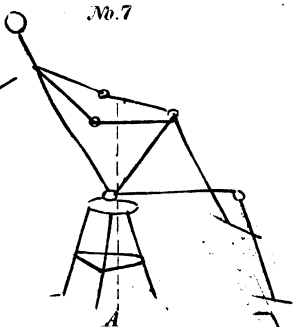


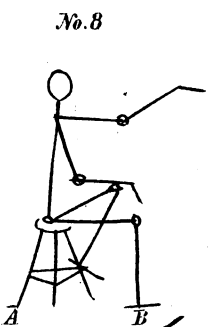


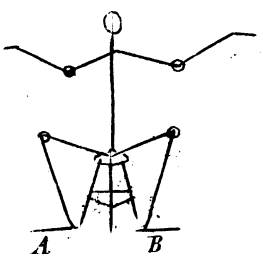


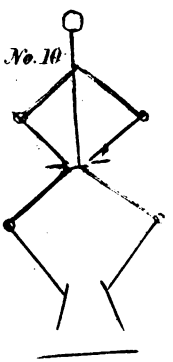


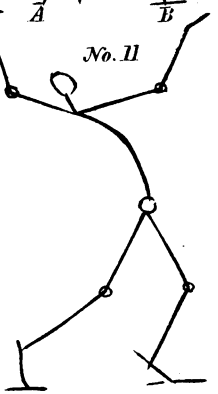












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Bent Bodies

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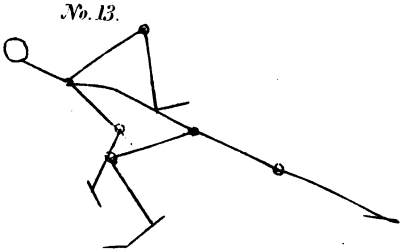

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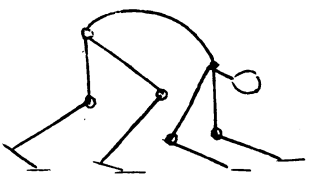


Part 2.d Transverse Elements

Double Lines.

Section 1

Fig. 1

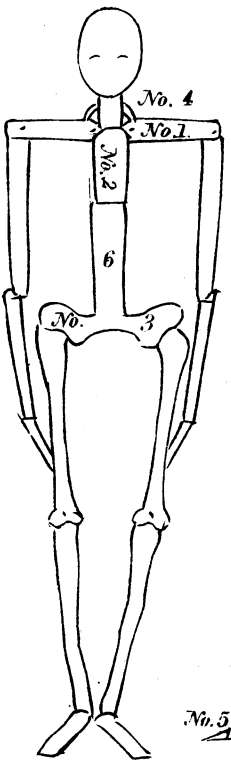
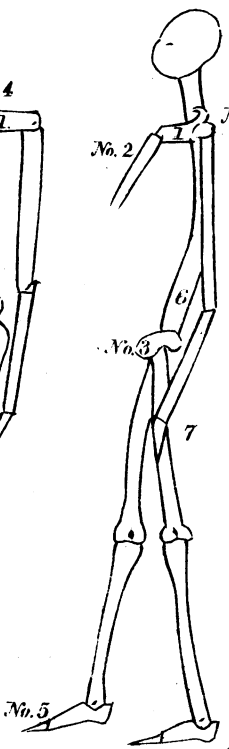


Fig. 2



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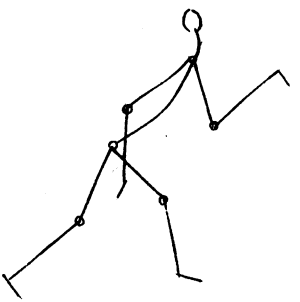

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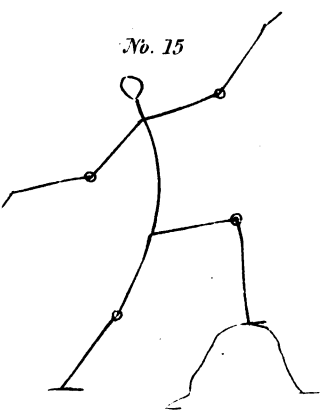


PART II.

TRANSVERSE ELEMENTS.

SECTION I., Pl. 6. — *Double Lines.*

FIG. 1. *Front View.* — FIG. 2. *Side View.*

No. 1. Shoulders or clavicular section.
No. 2. Breast-bone or sternum.
No. 3. Pelvic section.
No. 4. First rib.
No. 5. Toes.
No. 6. Spinal column or back-bone.
No. 7. Hand.

All other parts as in single-line drawings.

The arms and legs in double-line drawings, when seen in profile, appear to spring from the middle or body line, as in single-line drawings, Part I. (see figure No. 2, Part II.); but when seen in front, as in figure No. 1, Part II., are separated from the body, the arms by the clavicles, and the legs by the pelvis. The pelvis is immovably attached to the back-bone; and its position with reference to it cannot be altered (see Nos. 3 and 4, Pl. 7).

While each clavicle (collar-bone) may be lifted at the outer end (Fig. 5) as though attached to the sternum by a hinge, though it cannot easily be depressed below a horizontal line (as illustrated in No. 1, Pl. 6). Figs. 5, 6, 7, Pl. 7 will serve to show the action of the parts.

Fig. 5, Pl. 7. A, the clavicle lifted as when the arm is raised; Fig. 6, AA, both clavicles lifted as when both arms are raised; Fig. 7, A, the clavicle yielding under the weight of the body pressed up at its outer end by the bone of the arm.

The arms, if extended horizontally, may be made to meet in front of, but not behind, the body.

Fig. 8, arms extended horizontally.

Fig. 9, arms brought together in front.

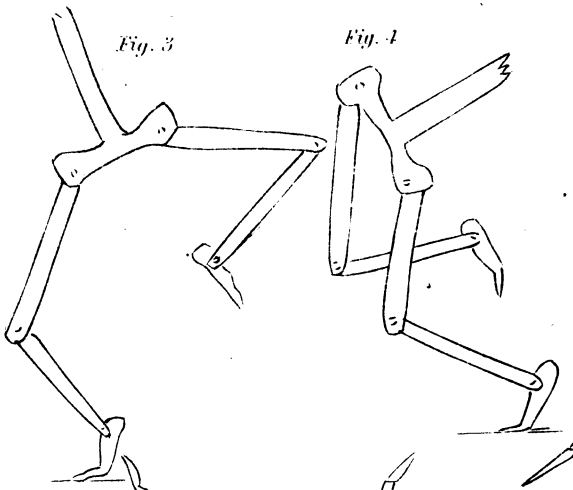
But if the arms be raised but half-way to the shoulders, then the hands may be made to meet behind the back.

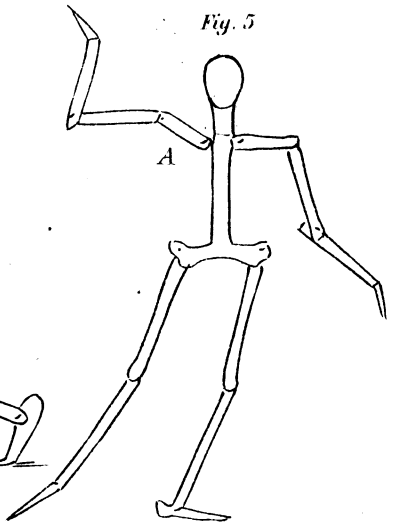
Fig. 10, Pl. 8, the proper elevation; Fig. 11, the hands clasped behind; Fig. 12, the arms folded.

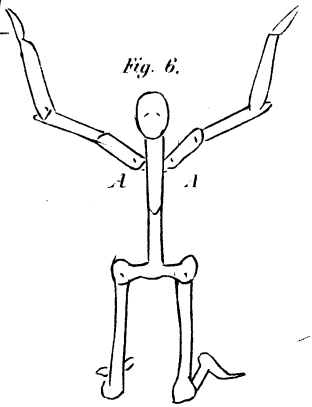
When a figure is to stand erect, neither leg being extended, the toes should turn out far enough to bring the heels together; which in life, in most persons, can be effected by placing the great toe of each foot upon a line with the middle of each thigh: and as this is the natural position of the foot with reference to the leg, whether the leg be extended or not, the foot, when not restrained, should always be so placed (see Figs. 13 and 14).

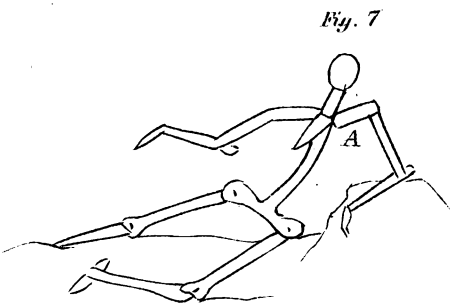
Fig. 14 shows the position of the feet in stepping.

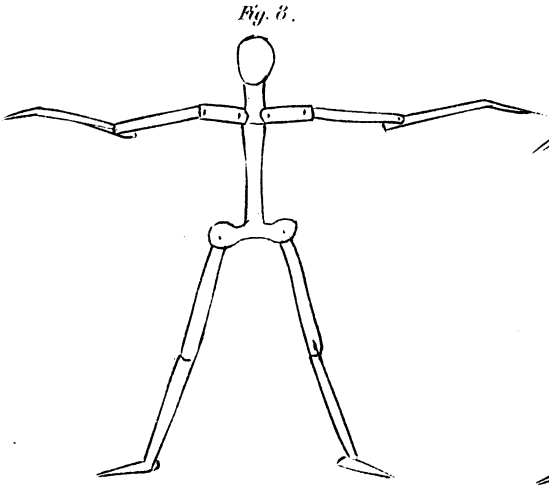
Fig. 15, the toes turned out as far as it is possible to turn them.











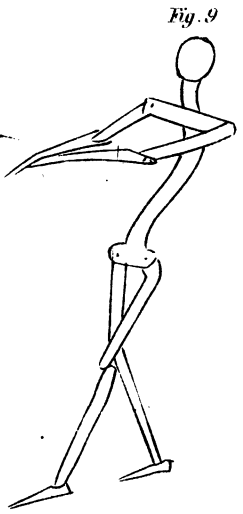


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Fig. 10

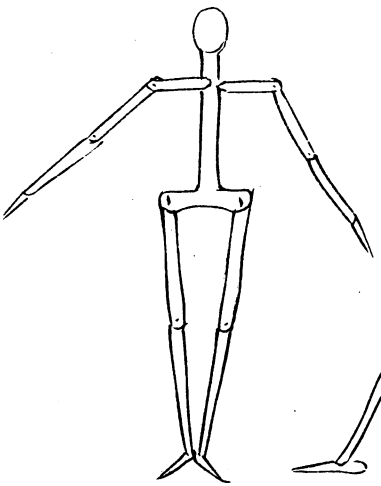


Fig. 11

Fig. 12

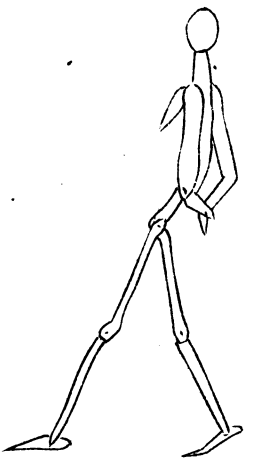


Fig. 13.

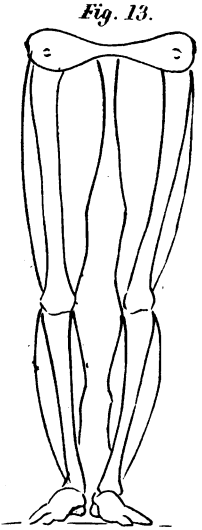


Fig. 14

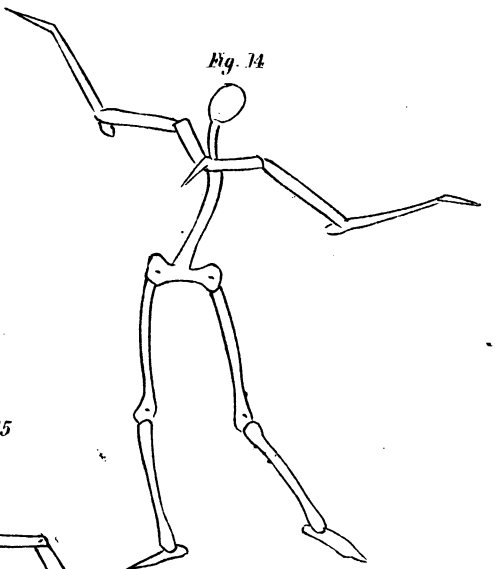
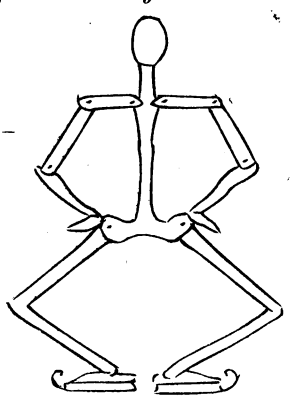


Fig. 15



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To the Teacher.

In these double-line figures, which, like those in single lines, are intended to illustrate certain principles in nature, there are four nearly equal elements, — the width of the shoulders; the length of the body from the top of the sternum to top of the pubis; the thigh from the head of the femur, or hip-joint, to the middle of the knee-pan; and the lower leg, or tibial section, from the middle of the knee-pan to the ground. This proportion, as in Fig. 17, Pl. 9, however, like many others, is uncommon. Usually the body section is longer than either the thigh or leg, though it is the middle third (thigh) that usually suffers the most when the body much exceeds these limits (as in Fig. 18, Pl. 9). But, as it is not to be expected or even desired that persons learning the simplest elements of drawing should enter upon the consideration of matters which belong to the exactest study of the art, it would be best, perhaps, for the sake of keeping to elementary principles, that all the parts should be considered equal, as in Fig. 17.

The distance from the top of the sternum to the top of the head, in Figs. 17 and 18, is four-sixths of the length of the upper third in each; but, for reasons already given, the pupil might be instructed to make this section equal to one-half the upper third. A square being, under all circumstances, necessary for this measurement, let the height of the body be what it may to secure a proper apportionment of this element to the whole height; the requirement being nearly the same under all circumstances for figures of medium propor-

tion, such as this classification is meant to represent. The head, face, and neck, for reasons already given, should be made of equal length also.

The width of the pelvis in Figs. 17, 18, is four-sixths of that of the shoulders. It will be sufficient to say, that it should be made considerably less.

Fig. 19, Pl. 10, a plan showing the increase and divergence of the right and left sections from a median line, as seen in the male figure, Nos. 17 and 18, Pl. 9.

A, B, C, right side; C, D, A, left side; 1 to 2, the body; 2 to 3, the thighs; 3 to 4, the legs.

A figure to appear in motion (be the position what it may) should be imperfectly poised. Compare, in the following illustrations, E, F, G, Pl. 10, with X, Pl. 11: —

All these illustrations, except perhaps 17, 18, Pl. 9, should be carefully drawn and fully explained by the teacher; and every figure made in single lines should be repeated in double lines, and the difference pointed out.

Section II.

Whole quantities as derived from vertical and transverse elements in Fig. 19.

Figs. 20 and 21, Pl. 11. Children should be taught to make these figures exactly as here described, taking particular care to keep all the principal sections of equal length, — body, thigh, and leg; adding, if need be, the vertical lines A, B, of Figs. 17, 18, Pl. 9, to show that

Fig. 17

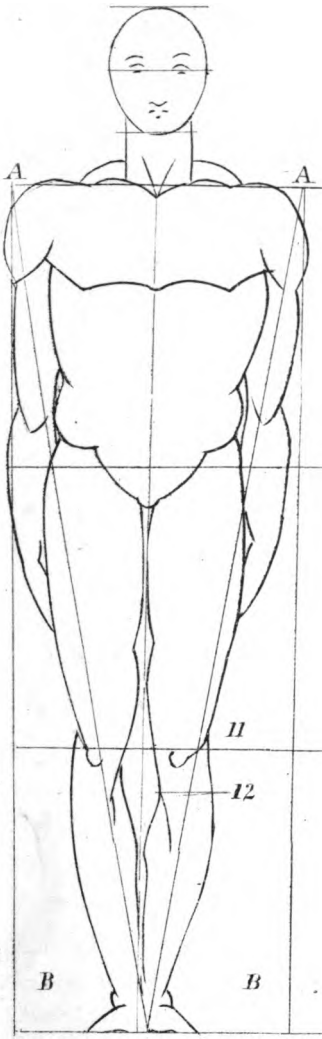


Fig. 18.

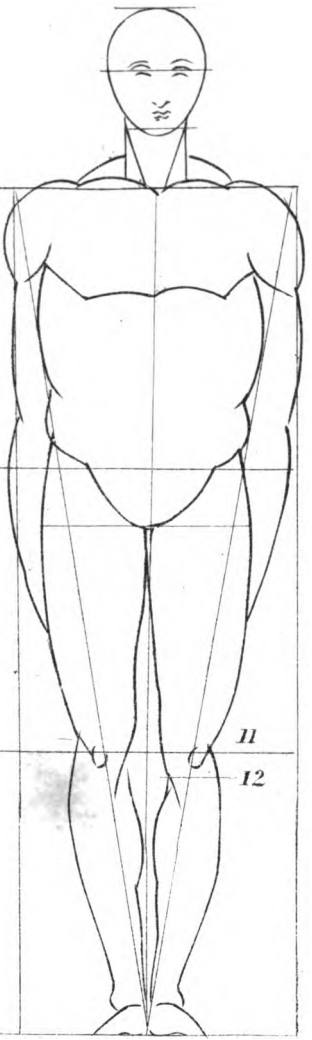
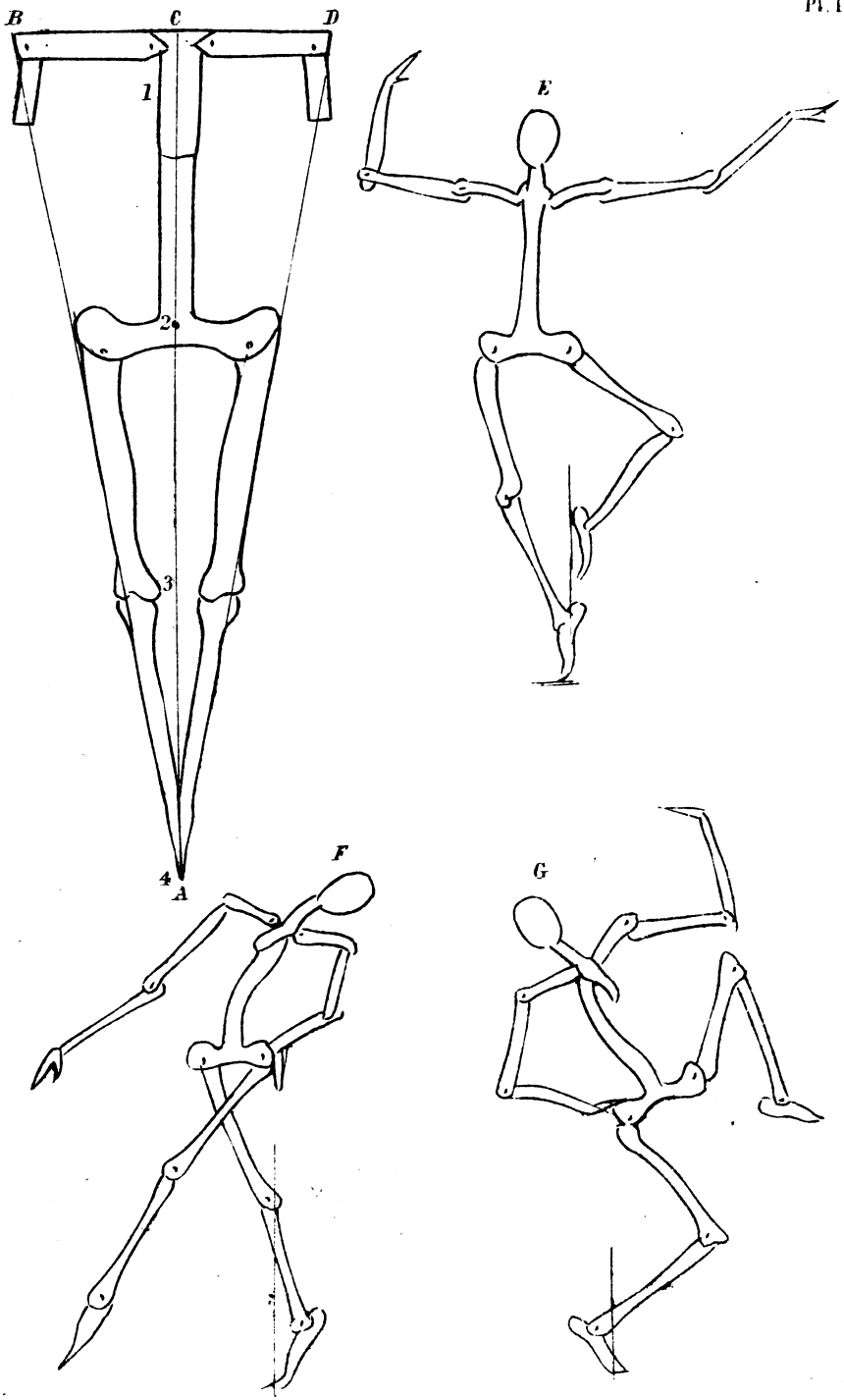


Fig. 19.



the parts are the same. After which, the parts 1 to 7, Pl. 12, A, B, C, D, E, F, G, should be drawn separately; noticing the difference in their directions, and that the upper arm is longer than the fore-arm, and that the thigh is longer than the leg.

Then let the parts be added successively in separate drawings, as in 1, 2, 3, 4.

After which, these being made with ease, let them repeat the following figures: —

Front View, 5, 6; and Pl. 13, Figs. 7, 8, 9, 10, 11, 12.

Side View, Figs. 1 to 11, Pls. 14 and 15.

Observe that the side is not so wide as the front (see 20, 21, Pl. 11), and that the arms and legs are attached to the body, or central line, as in primitive line-drawings.

Three-quarter View.

In these drawings, two sides of the upper third must be shown, as in the following plans: 1, Pl. 15, A, the front; B, the side; A or B may be the greater or lesser quantity, as the figure is turned more or less to the front, as in plans XXX., and in illustrations 1 to 5, Pls. 15, 16.

Three-quarter View foreshortened.

In three-quarter view foreshortened (that is, leaning towards you or from you), three sides of the upper third must be shown, as in the succeeding plans, Pl. 16, W,

W, Fig. 1, A, the front; B, the side; C, the top. Fig. 2, A, the front; B, the side; C, the end. Fig. 1 leans towards you; Fig. 2, from you.

In drawing figures in whole quantities, let it be explained that as much of one part as lies behind another cannot be seen; and that one side of the body cannot be turned towards you, without turning the other from you. In which case, taking the arms and body as an example, the parts will be situated as follows: first, the arm turned toward you; then, the body behind it; and, lastly, the further arm behind the body. See all the previous drawings of whole quantities; and as it is impossible to make profile or three-quarter drawings without placing one part behind another, so it is impossible in these drawings to show as much of one limb as another. The length of the further limb is to be found by tracing it to its articulation with the body, as in the foregoing figures, Nos. 1, 2, 3, three-quarter views, Pls. 15, 16, P, P, P.

Foreshortened Figures. 1 to 10, Pls. 17, 18, 19.

Foreshortening.

Diagram showing the parts and quantities seen as the body is more or less foreshortened, Pl. 20.

A vertical line, embracing all the rays proceding from all the body, — as in X, AA, or parts of the body, Y; PP, the arm; R, the arm and fore-arm; L, the leg, — will show the actual surface that each part should occupy upon it.

Fig. 20

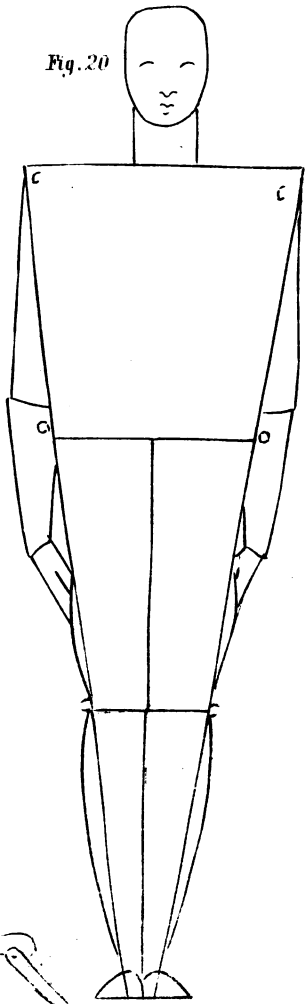
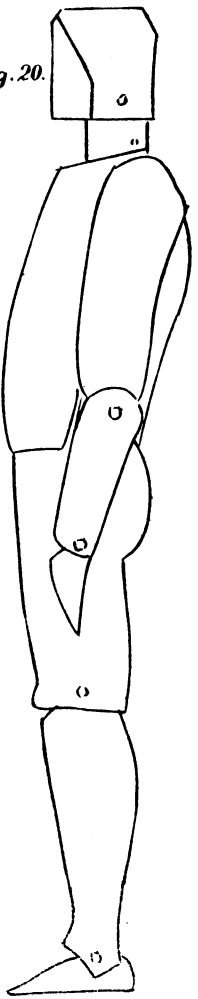
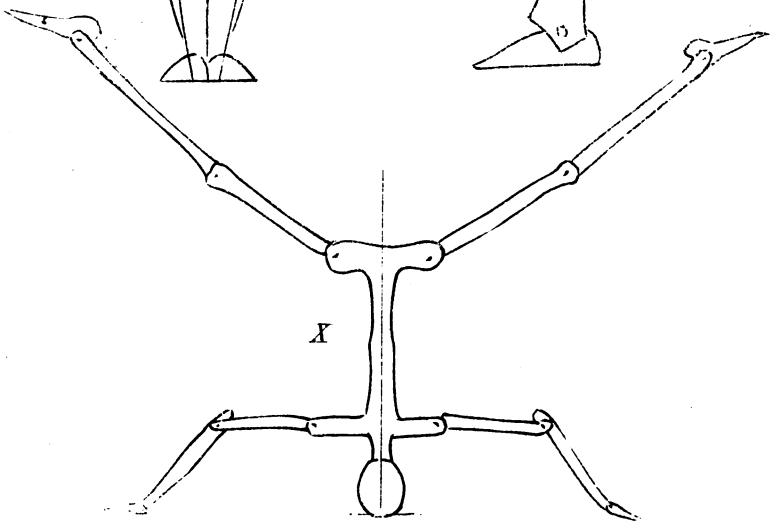
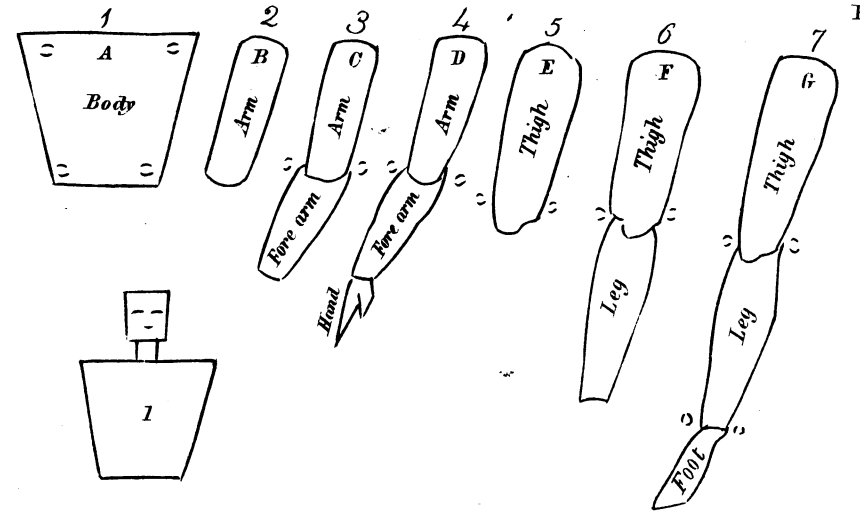
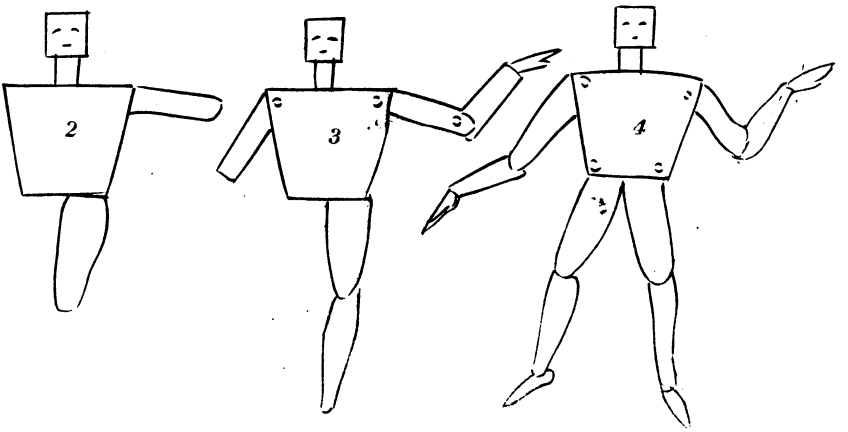


Fig. 20.






1
A
Body
2
B
Arm
3
C
Arm
Fore arm
4
D
Arm
Fore arm
Hand
5
E
Thigh
6
F
Thigh
Leg
7
G
Thigh
Leg
Foot
1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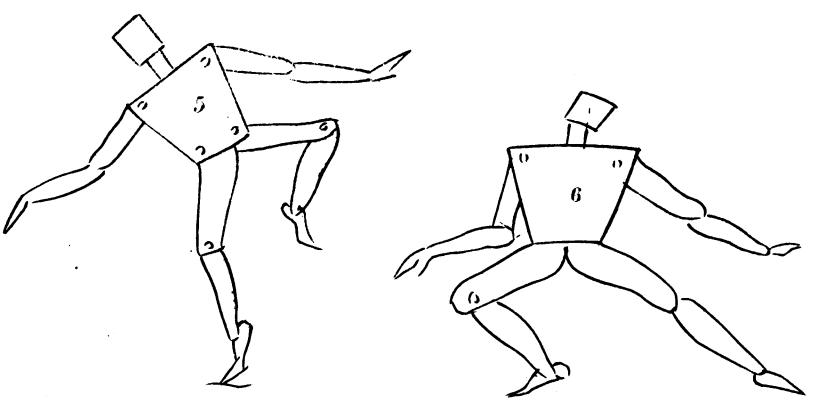
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6

PART III.

SKELETON LIMITS.

No. 1. Head.
„ 2. Face.
„ 3. Neck.
„ 4. Trapezial corner block.
„ 5. Clavicle.
„ 6. Breast.
„ 7. Ribs.
„ 8. Space under the ribs.
„ 9. Pelvis; V, the measuring point.
„ 10. Thighs.
„ 11. Outside of the leg, above the knee-pan, A, Figs. 1, 2.

No. 12. Inside of the leg, below the knee-pan, Fig. 1 and Figs. 17, 18, Part II., Pl. 9.
„ 13. Leg.
„ 14. Foot.
„ 15. Fig. 2, top of the thigh.
„ 16. Back.
„ 17. Shoulder-plate.

B, C, D, Fig. 2. First, second, and third section of the back of the leg.

Head. Pl. 21.

1. The head and face an egg-shaped, oval, front view.

2. A, the head; B, the face.

3. A, the head an egg-shaped, oval (drawn horizontally) profile; B, the face one-half of a smaller oval,

leaning slightly forward, drawn under the small end of the upper oval.

A, B, C, D, E, in Fig. 4, the same as parts numbered 1 to 5 in Figs. 1 and 2, the same and other letters as figured in 1 and 2 also.

In Fig. 3, the opening of the ear, X, or meeting of the inner line of the lower oval with the under line of the upper, is opposite the bridge of the nose.

Let two marks for the eyes, as in Fig. 4, take the place, in subsequent drawings, of the line across the face marking the under limit of the cerebral oval (see Fig. 2). Notice that the upper oval projects beyond the under from X to A, Fig. 3; leaving room for the neck behind the jaw, as in Fig. 5, X, A.

Let the teacher observe all the rules of the previous parts and illustrations, especially the fundamental ones of length and width; to which add the following: that the back will bend opposite the open space (T, Fig. 1; 8, Fig. 2) between the pelvis and ribs; that, in stooping or sitting, the pelvis and ribs must be pressed together as in the following figures (8, Pl. 22; 9, Pl. 23):—

A, the ribs; B, the pelvis (Figs. 8, 9) pressed together, as is natural in these positions; the open space, 8, between the ribs and pelvis (see Figs. 1, 2, Pl. 21, Div. 8), being very much lessed by the flexion.

Observe that the back in these Figs. 8, 9, exhibits three planes:—

1. The shoulder;
2. The back;
3. The loins;

Fig. 7

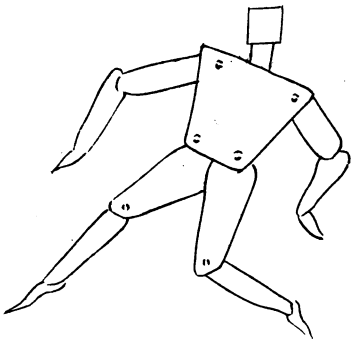


Fig. 8.

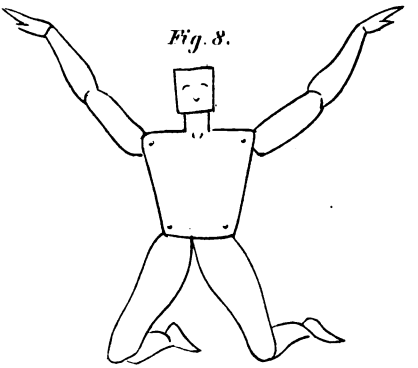


Fig. 9.

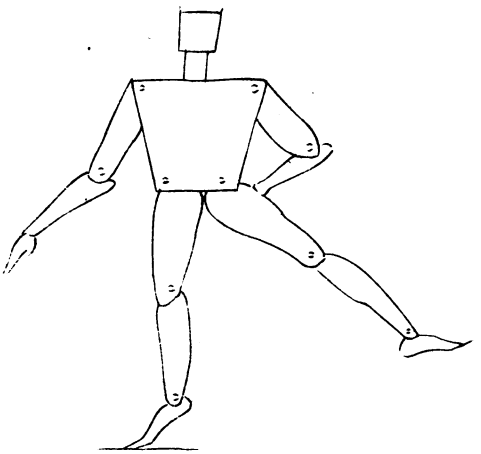


Fig. 10

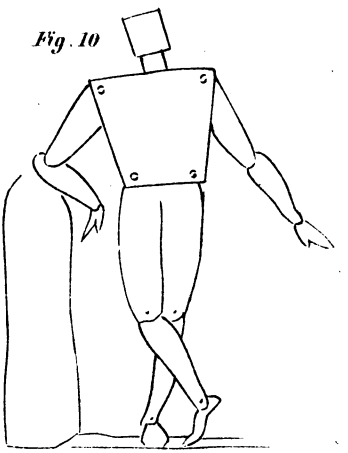


Fig. 11.

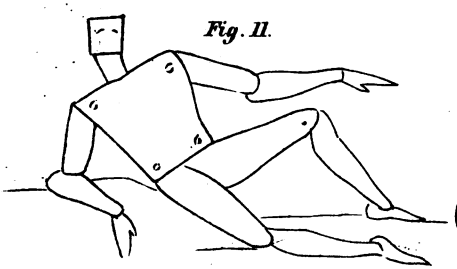
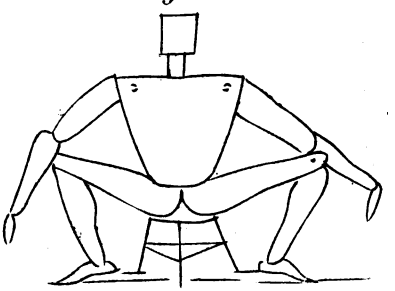


Fig. 12.



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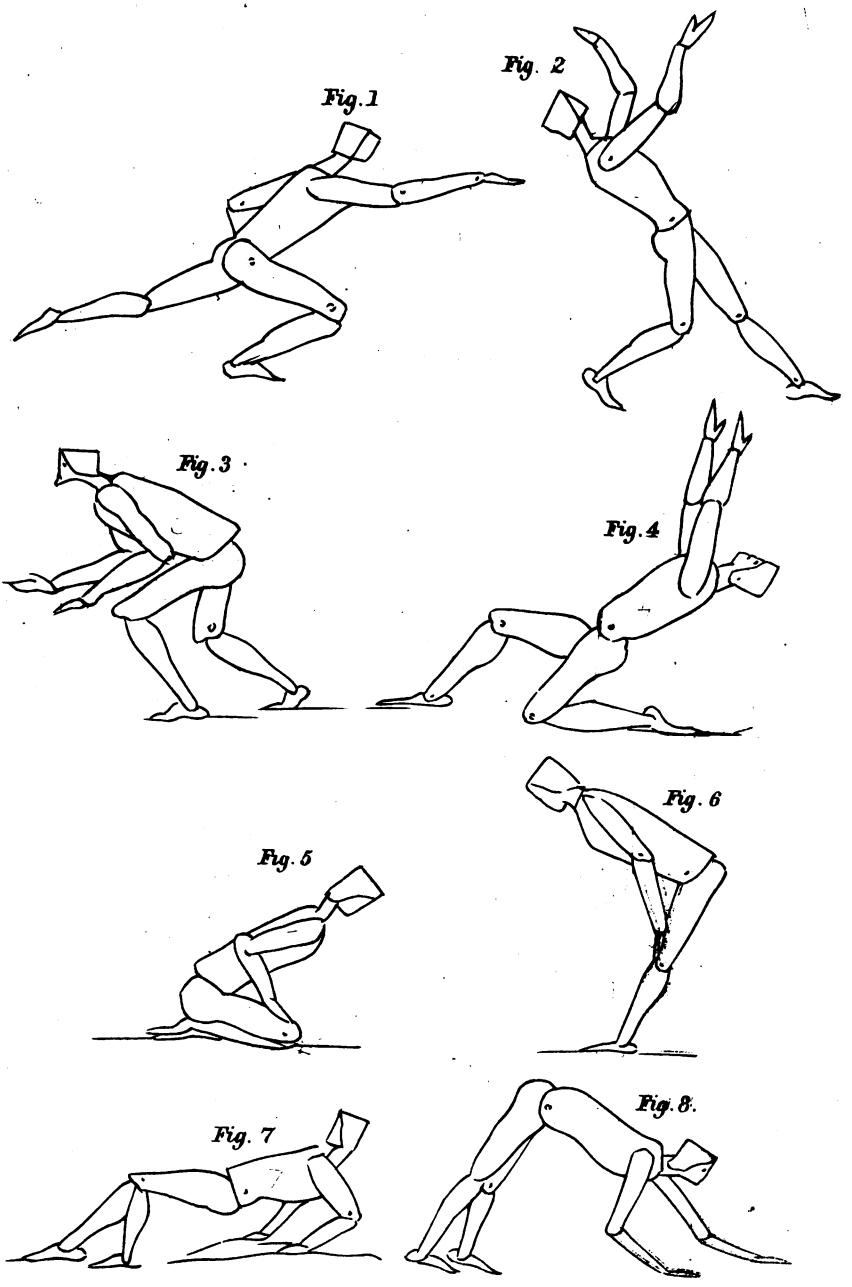
Side view.



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And that these angles are not visible when the figure is placed erect (see Fig. 2, Pl. 21, Div. 16).

That the pelvis and ribs must be separated when the body leans back, as in Fig. 10, Pl. 23.

Compare Div. 8 (the abdominal section), Fig. 10, with the same part in the preceding Fig. 8, Pl. 22, Fig. 9, Pl. 23. Notice that the body may be bent sideways, as in Fig. 11, Pl. 24.

Observe, in the plan, how much nearer the ribs are to the pelvis on the upper or flexed side than on the lower or extended side of the body; and that the clavicle on the right side, A, is pressed up by the arm (perhaps it would be as well to say, that the inner end is depressed by the sinking of the body) by reclining in this manner below the shoulder end, which is supported by the humerus, or bone of the upper arm.

In examples 1 and 2, Pl. 24, A and B have dotted lines, showing the form of the abdomen. This may be done in subsequent drawings.

Fig. 3, Pl. 25. Clavicle elevated at the outer ends, C, D.

Figs. 4, Pl. 25; 5, 6, Pl. 26, — illustrate the action of the parts.

Let all the illustrative figures of Part II. be repeated, with the introduction of all the present division; noticing, that, when the body is flexed or bent together, the abdomen protrudes, as in the Fig. 8, A; and that when it is extended, or bent back, it flattens, as in Fig. 9, A.

After the pupil becomes familiar with the different sections as thus far explained, let the figure be drawn as

is directed in Figs. 1 and 2, this Part, Pl. 21; and then let the inlines, marking the different sections, be obliterated, and the outline, as in life, will remain as follows (Fig. 10, Pl. 27):—

Fig. 10.

1. Outline of pectoral section.
2. Outline of costal section.
3. Outline of flank or section between the ribs and pelvis (Sec. 8, Fig. 1, Pl. 21; and A, B, Figs. 3, 5, 6).
4. Outline of pelvis.
5. Outline of thigh.
6. Outline of leg.
7. Outline of foot.

After which, in front view, Fig. 11, add the outline of the top of the clavicle two-thirds the way to the shoulder, the pectoral section, and the line for the flesh covering the pubis.

Fig. 11.

1. The top of the clavicle.
2. The pectoral lines.
3. The pubic lines; and for the back, the shoulder-plate (2), the line marking the right and left dorsal section (3), the top of the thigh (4), the calf of the leg (5), and the heel.

Fig. 9.

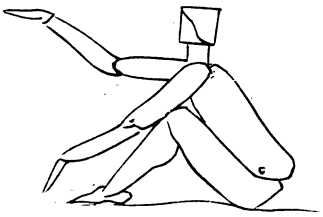


Fig. 10

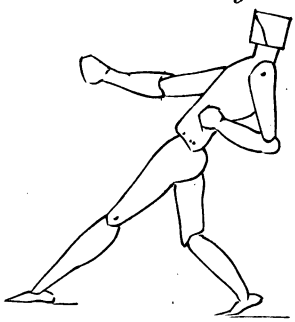
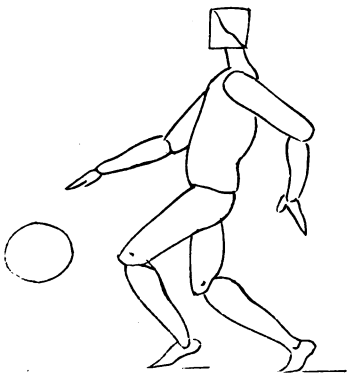
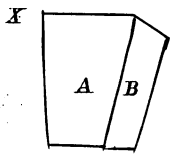
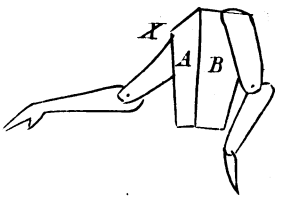


Fig. 11.



Three quarters view.





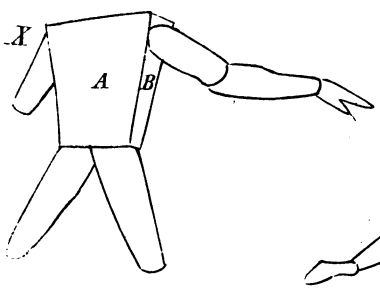


Fig. 1.

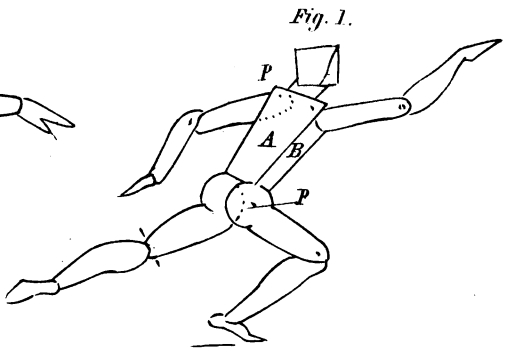


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Fig. 2

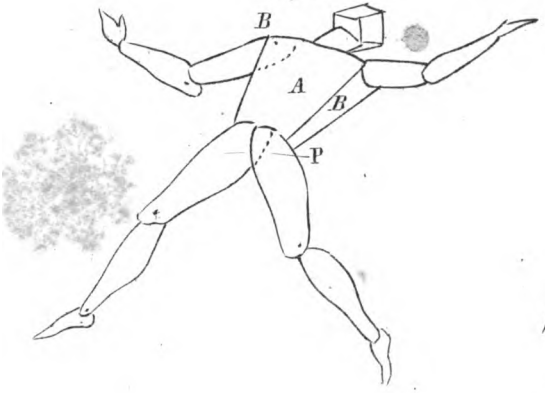


Fig. 3.

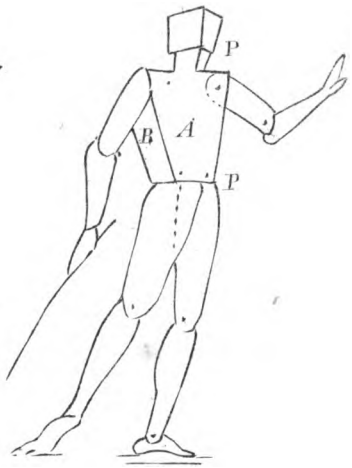


Fig. 4

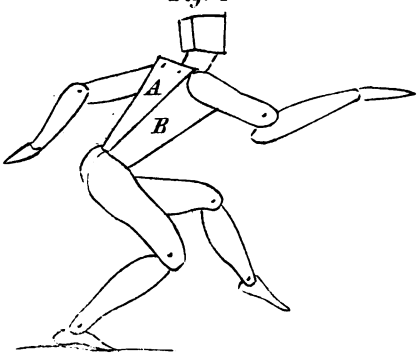
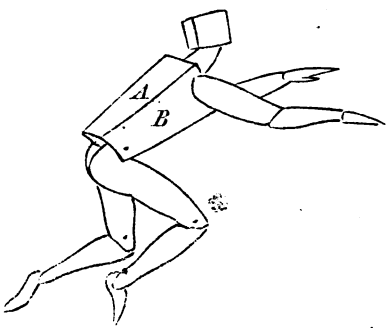


Fig. 5.



Three quarters view, fore. shortened.

Fig. 1.

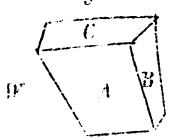


Fig. 2

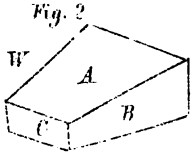


Fig. 12.

1. Trapezial or corner block.
2. Shoulder-plate.
3. Dorsal section.
4. Top of thigh.
5. Angular line under the calf of the leg.
6. Heel section.

Fig. 13. *Profile Lines to be introduced.*

1. Trapezial section or block.
2. Top of clavicle.
3. Pectoral line.
4. Shoulder-plate.
5. Costal section, under pectoral.
6. Dorsal section (Sec. 3, Fig. 12).
7. Abdomen.
8 Pubis.
9. Top of thigh; 9A, back of thigh; 9B, front of thigh.
10. Superior angle of calf of leg.
11. Inferior angle.
12. Achilles tendon.
13. Heel.

Let the pupil make all the previous figures of Part II. and III. in living outline as above (11, 12, 13).

PART IV.

HEAD.

To the Teacher.

FIGS. 1, 2, 3. Pl. 28.

1. Head of child.
2. Head of female.
3. Head of male.

Observe in the infant's head, Fig. 1, that A, the cerebral section (the whole mass above the eyes), is larger than the facial section (the quantity below the eyes); the eyes being below the line X, which divides the head into equal parts.

In the female head, Fig. 2, the oval is smaller at the lower end than the same part in the child's head; the eyes being on the median line, X.

In the male head, the lower end of the oval is larger than in the head of the female; and the eyes are above the median line, X. This rule is exemplified only in the greatest number of the best heads, male and female, at the period of early puberty; it being most commonly the case that the distance from the eyes to the chin is greater than that from the eyes to the top of the head.

Fore shortened Figures.

Fig. 1.

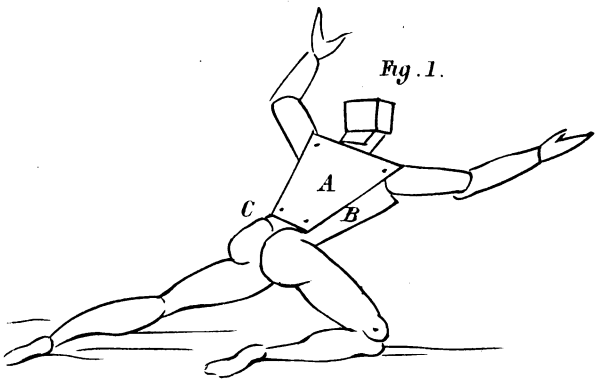


Fig. 2

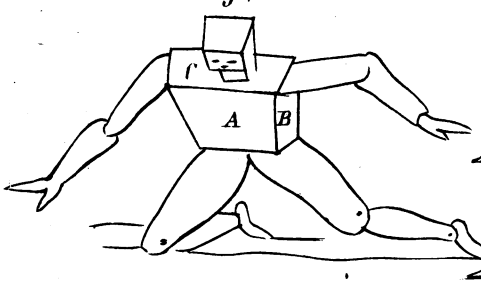


Fig. 3.

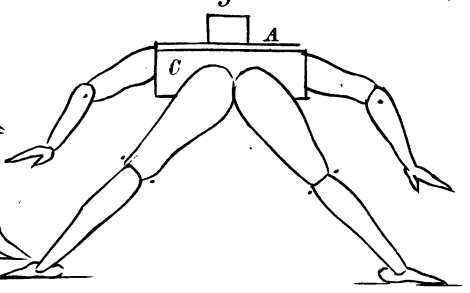


Fig. 4

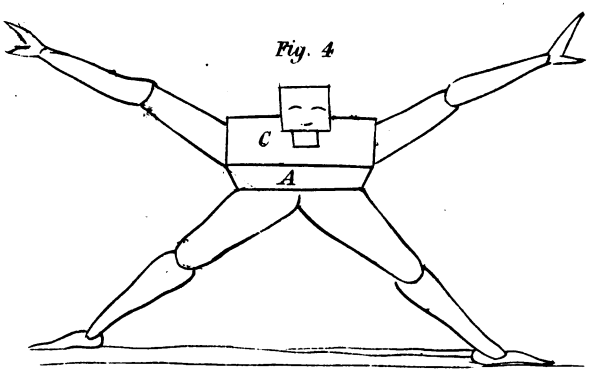


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Fig. 5

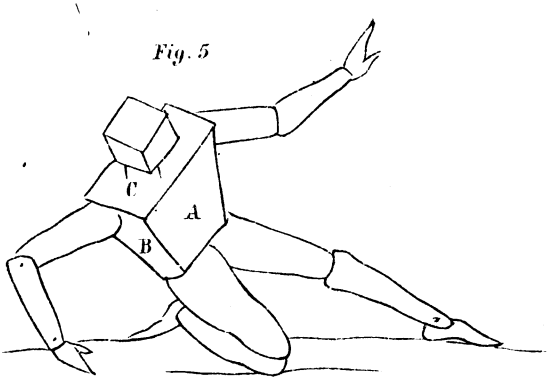


Fig. 6

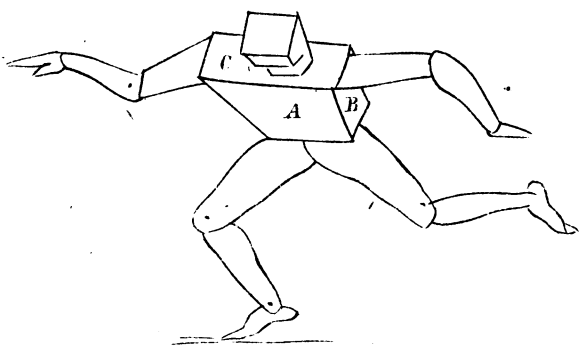
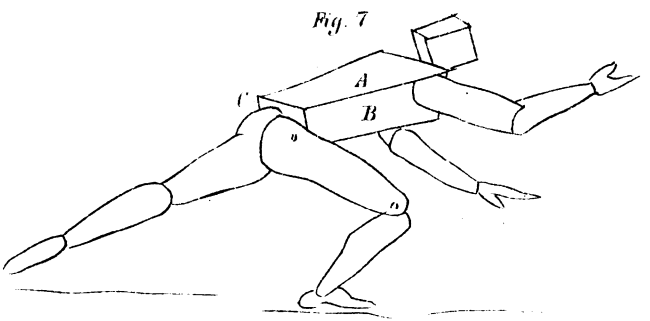


Fig. 7



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At the period of early infancy, the rule as given more commonly holds good.

The following generalization of the quantities found in a great number of heads will be found sufficiently exact to enable the pupil to comprehend their simplest elements: —

There should be nearly the distance of an eye between the eyes (Fig. 4, Pl. 28, A).

Two-thirds the length of an eye from the outer corner of the eye to the outline of the face, B.

The width of an eye from the eye to the eyebrow, C.

The eyebrow should begin within the inner corner of the eye, and extend a little beyond the outer corner of the eye. The width of the nose across the nostrils, D, D, should be nearly as great as the length of the eye. The thickness of the nose at A, between the eyes, should be one-third that of the end of the nose. The top of the ear, E, should not be above the eyebrow, C; the bottom of the ear, F, not below the top of the nostril, D. From the top of the head to the middle of eye (noticing the difference in the heads of the male, female, and child, above described) should be one-half the whole head, G, L. The nose should extend from the middle of the eyes half-way to the chin, A, L (one-quarter of the head); and if the remainder or lower quarter, H, L (from the end of the nose to the chin), be divided into five equal parts, the line for the meeting of the lips should be on that marking the junction of the two upper with the three lower fifths, J, J.

The mouth should be one-half longer than the width of the nose.

Profile. Fig. 5, Pl. 28.

The distance from the bridge of the nose, A, to the back of the head, B, should be divided into three equal parts, — two of which should stand for the distance from the bridge of the nose to the opening of the ear; and the third, for the distance from the opening of the ear to the back of the head. There should be one-half the length of an eye from the bridge of the nose to the ball of the eye, X, X. One-half the length of an eye should be seen in profile, X, Y (this means the ball of the eye). One-half the mouth should be seen in profile (V, V).

The corner of the mouth should be nearly on a line with the front of the eye, V, X.

The profile depth of the nose, W, W, from the back of the nostril to the end of the nose, should be equal in length to the width of the nose across the nostrils in front view, D, D, Fig. 4.

The back of the nostril, W, should be a little in advance of the front of the eye, X, and the corner of the mouth, V. The upper lip and depression at the top of the nose, in front of the eye, X, V, should be upon a vertical line.

The end of the nose, W, should project beyond the line two-thirds of the length from the point of the nose, W, to the back of the nostril, W.

The angle of the jaw, R, should be nearly on a level with the corner of the mouth, V.

If the whole length of the jaw horizontally be divided

Fig. 9

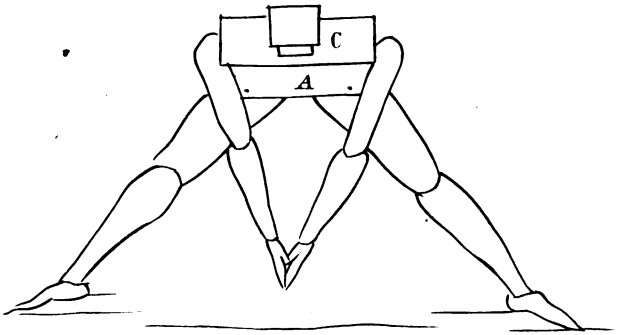


Fig. 8

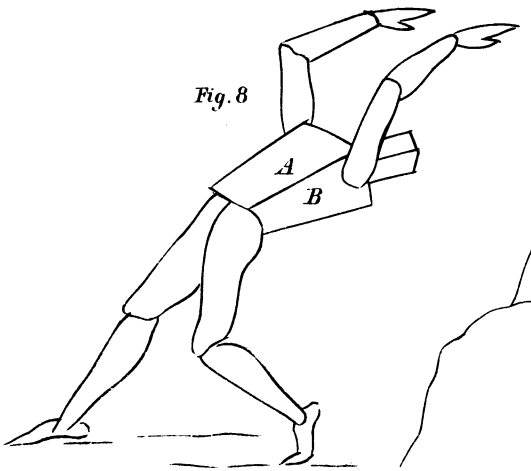
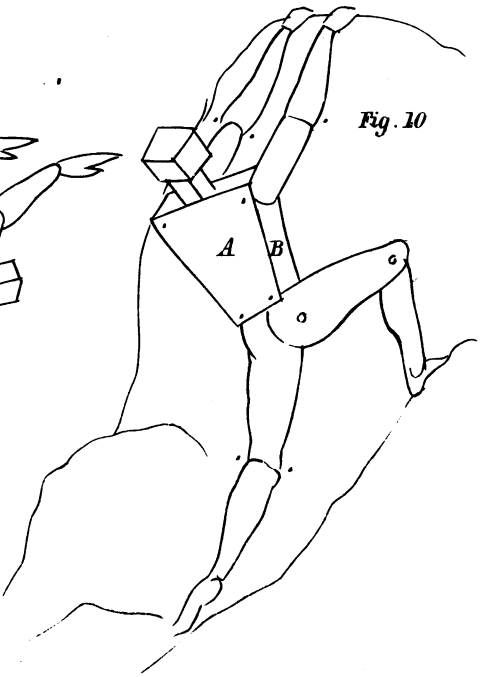


Fig. 10



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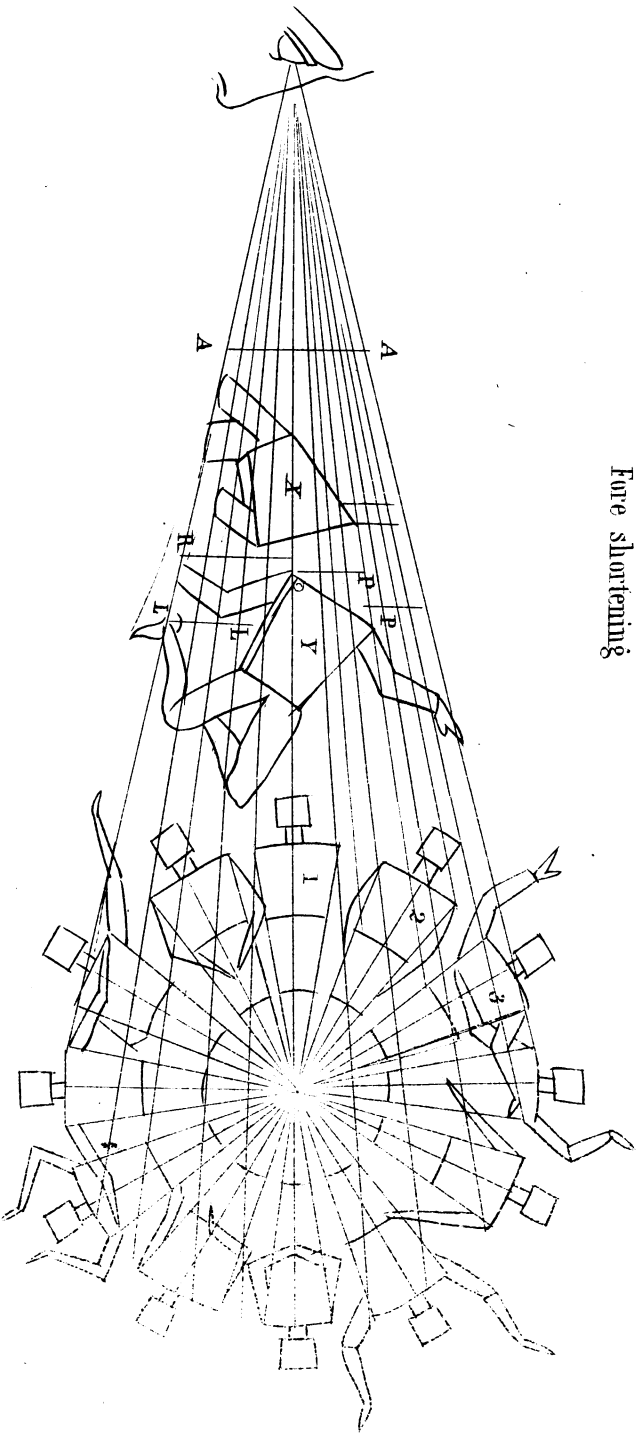

Fore shortening

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into four equal parts, three would be for the inferior border, T, R, and one for the superior border, R, W.

The junction of the neck with the chin should be half-way between T and R, at O.

The distance from the end of the nose, W, to the back of the head, B, upon a horizontal line, should be nearly the same as that from the top of the head to the chin, Z, T.

Exercises.

Let the pupil proceed as follows: —

The Eye. Pl. 29.

Fig. 1. Inner corner, X, and under line of upper lid.

2. Inner corner, under and upper line of upper lid.

3. The same, with outline of iris, T.

4. The same, with outline of pupil, P.

5. The same, with upper line of under lid, U.

6. The same, with the eyebrow, O, and the curved lines, *q*, *q*, marking the inner and outer limits of the double lid, or region between the upper lid and eyebrow.

Eye in Profile.

7. The ball of the eye, L, and under line of upper lid, O.

8. The same, with boundary-line of upper lid in front, V; and upper line of upper lid, as in 2, 3, 4, 5, 6, in front view.

9. The same, with upper line of under lid.

10. The same, with line W for iris.

11. The same, with eyebrow, R, and line of brow, B, and nose, N. Observe that the upper lid in all these numbers, 7 to 11, projects beyond the ball of the eye, W, W; and that it also projects beyond the under lid at the inner corner, V, V (as in 9, 10, 11; as in 5 and 6, front view, V, V).

Mouth. — Front View. Pl. 29.

Fig. 1. Under line of upper lip, having three parts, — B, central; and A, C, the lateral lobes.

2. The upper line of upper lip, having three sections, — the central, E; and two lateral, D, F.

3. The same, with the lines of the face, X, X; under which the corners of the mouth disappear.

4. The same, with the boundary-line of the under lip. This line is meant to bound or represent the principal fleshiness of the mass; the under lip usually terminating at the same point with the upper lip.

Profile. Pl. 30.

Fig. 5. A, upper and corner line of upper lip; B, central lobe (see B, front view); C, side lobe (see C, side lobe, front view).

Fig. 6. The same, with front line, D, and boundary, E (see V, Fig. 4, front view, XX), cutaneous portions of upper and under lip. Notice that the upper lip projects beyond the under lip; and that the curve of each is nearly the same, of the colored or mucous surface.

Skeleton Limits.

Fig. 1.

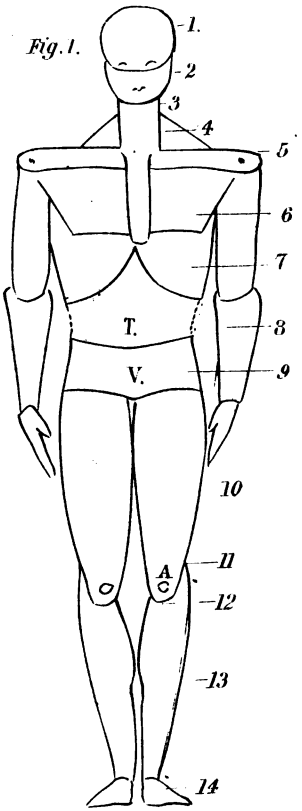


Fig. 2.

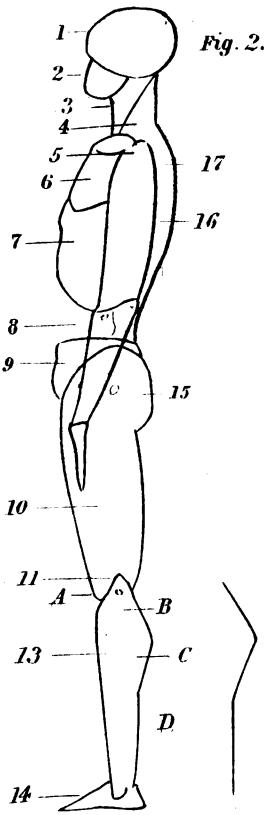


Fig. 1.

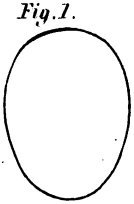


Fig. 2.

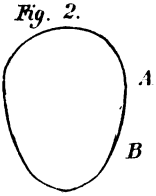


Fig. 3.

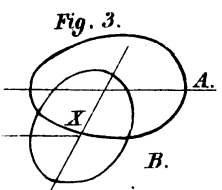


Fig. 4

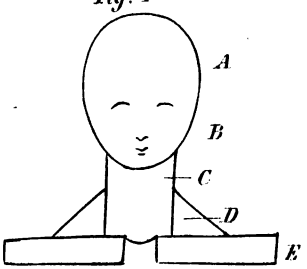


Fig. 5.

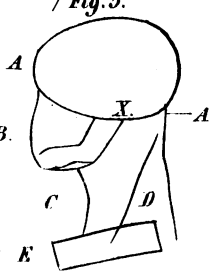


Fig. 6

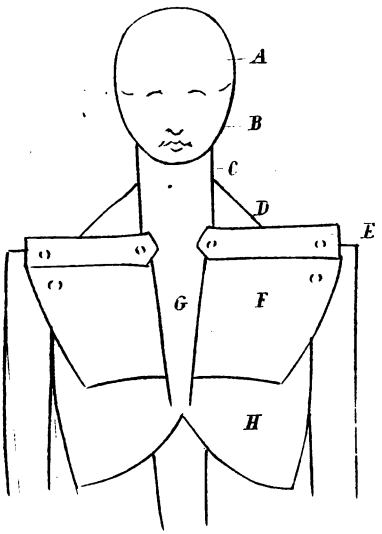


Fig. 7

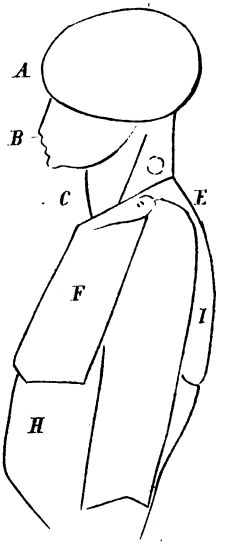
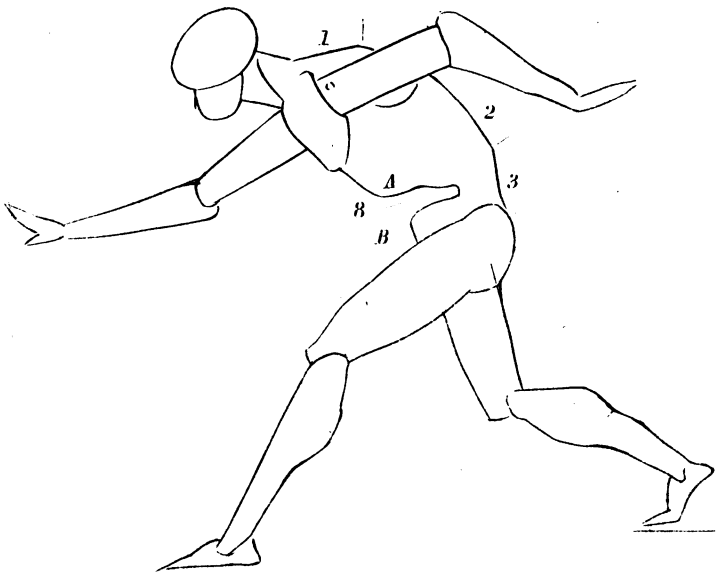


Fig. 8.



Nose. — Front View. Pl. 30.

Fig. 1. Frontal section, or section above the eyes.

2. The same, with the bridge, or first section, below the eyes.

3. The same, with the third or cartilaginous section below the bridge.

4. The same, with the end of the nose, A, and nostrils, B, C. Notice that the nostrils fold under the end of the nose, and that the end of the nose is below the nostrils.

5. The same with the side of the nostrils, D, D.

6. The same, with the line of the face, E, E; and the channel between the nose and upper lip, F. This channel or groove is wider at the bottom than at the top.

7. The same, with the addition of the eyes and mouth and outline of chin, as seen in front view, Z.

Nose in Profile. Pl. 30.

Fig. 1. Frontal section, or section above the eyes.

2. The same, with the bridge, or first section, below the eye.

3. The same, with the third or cartilaginous section.

4, Pl. 31. The same, with the end of the nose in three parts.

5. The same, with the line for the lower border of the nostril; which, it must be observed, is turned under or into itself at H; the cartilage, H, always to be below the nostril, and the nostril horizontal.

6. The same, with the inner and upper borders of the nostril, W, V.

7. The same, with the line T connecting the face with the nose and the cutaneous portion of the upper lip, Z, Z; and the mucous, or colored portion, Z, G.

8. The same, with colored portion of under lip, and line of face at the inner corner, as in front view.

9. The same, with cutaneous portion of under lip, R.

10. The same, with outline of chin, B; and second or double chin, Y.

11. The same, with brow or frontal section, K, S, in two lines.

K, J, S. Each section of every feature should be given as a separate lesson; adding, as the pupil advances in execution, one section to another as above, and as is directed through every part and section of this book; at the same time giving the rule applicable to the part, requesting the pupil to commit it to memory: for which purpose, in every case, there should be recitations.

First steps for young children, observing all the previous rules for the location and division of parts.

Pl. 31, Fig. 1. Head, A; face, B.

2. The same, with nose and four corner sections, — 1 to 4. The under two to be rather smaller than the two upper.

3. The same, with one-third of inner section of face in a corner section.

4. The same, with a line for the back of the neck attached to the inner corner of angle 4, and inclining outwards, and one-third of lower border of face in corner section.

Fig 9

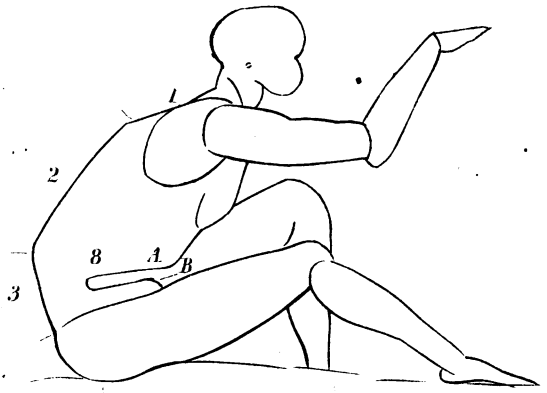


Fig. 10.

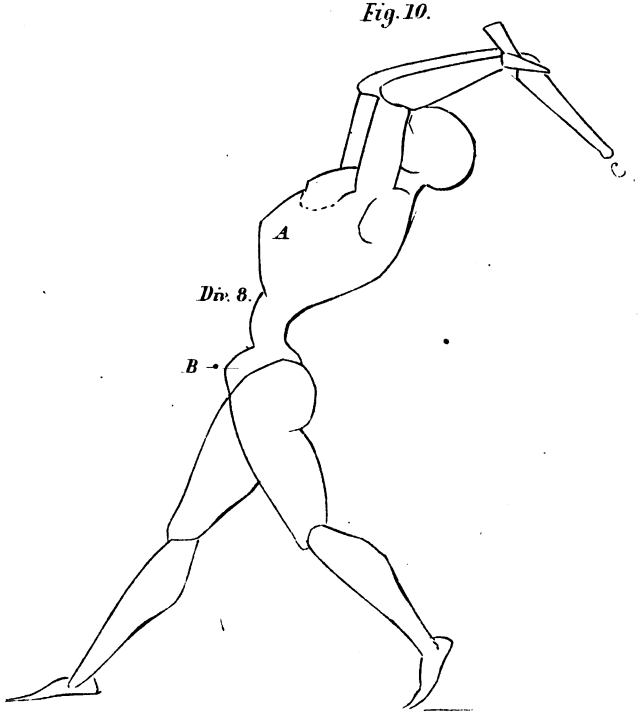


Fig. II

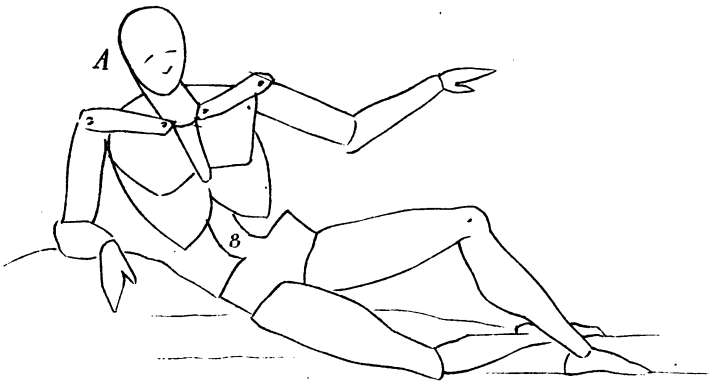


Fig. 1.

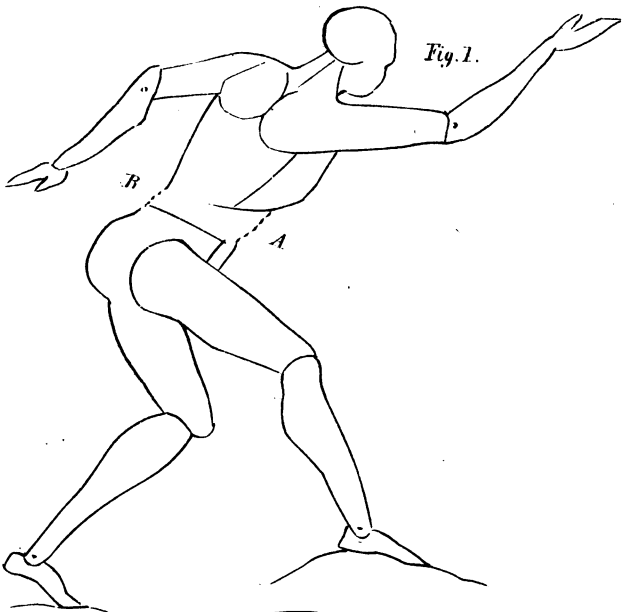
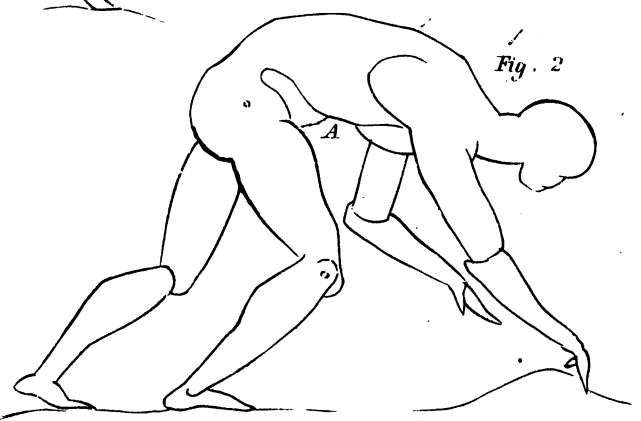


Fig. 2



5. The same, with front line of neck attached halfway between the line bounding the inner corner section, X, and the chin, C.

6. The same, with the first and second lines of the eye, the under line of nostril, and first line of mouth.

7, Pl. 32. The same, with the eyebrow and ear.

8. The same, with all the outer sections removed, and a line for the second chin added.

PART V.

THE EAR.

Pl. 32, Fig. 1. The lobe.

2. The lobe, and outer border of the rim, A, B, axis.

3. The same, with inner border of rim, B.

4. The same, with under line, X, of body, I; and inner outline of lower cavity, S, S.

5. The same, with outline of cavity, T, at the top of the body of the ear; the auditory passage, P; and boundary of inner rim, R.

The ear is so complicated a structure, that no reduction of its parts to simple elements can be effected, except by making such reduction of all its parts separately. The following (Fig. 6), however, may be of service to the teacher: —

FACE (*continued*).

Front View, for Young Children. Pl. 32.

Fig. 1. Cerebral section.

2. The same, with facial section.

3. The same, with lines for eye, nose, and mouth.

4. The same, with lines for top of head and chin, A, B.

5. The same, with terminal line of cheek, Z, Z.

6. The same, with sides of neck.

Fig. 3.

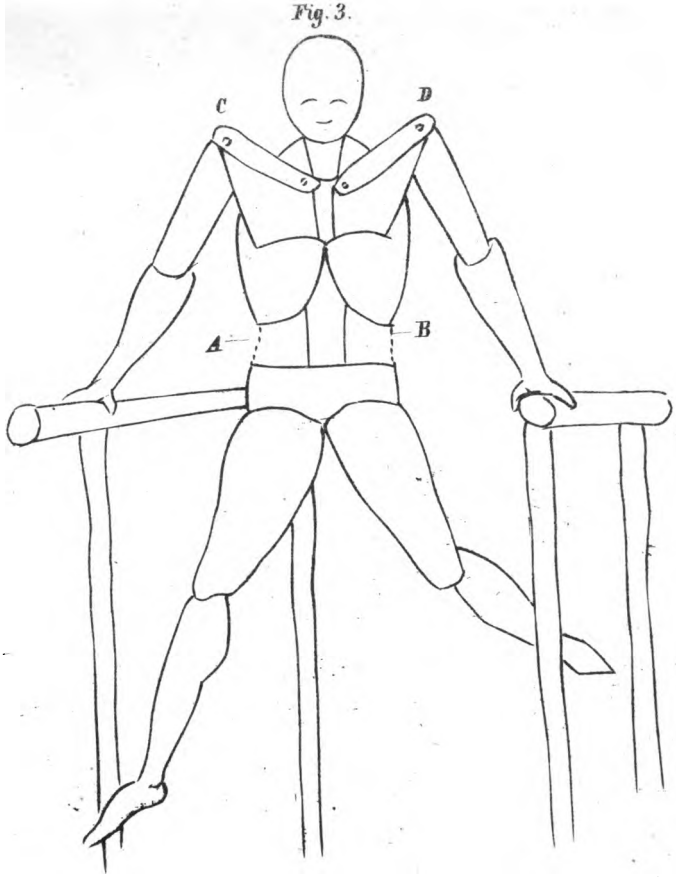


Fig. 4.

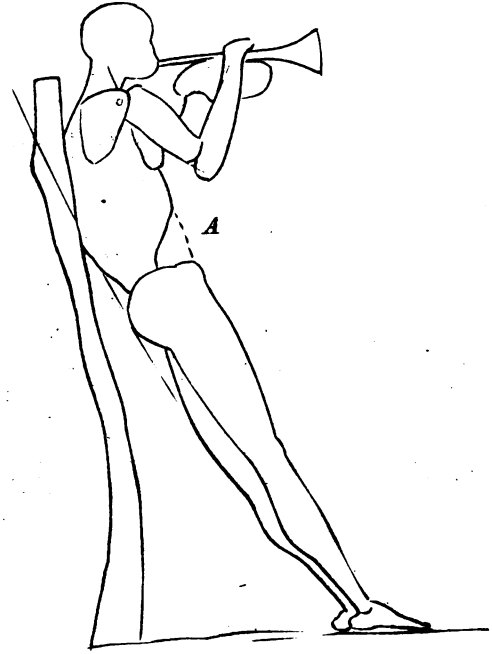


Fig. 6.

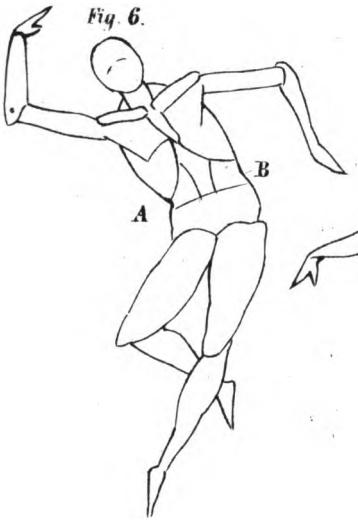


Fig. 5.

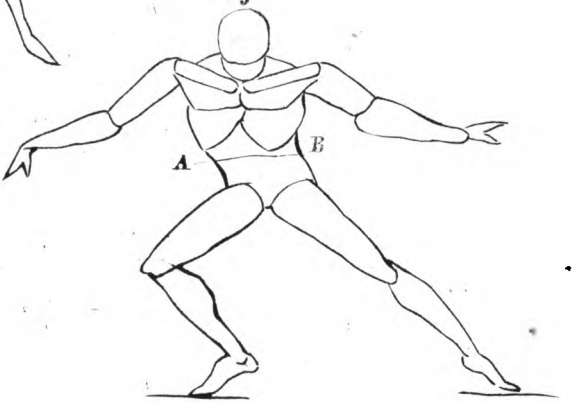


Fig. 8.

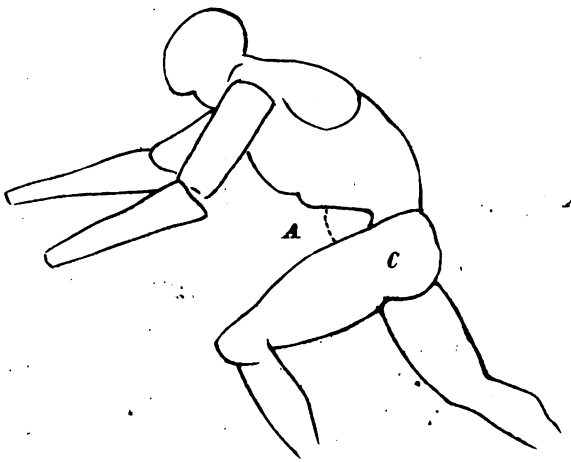
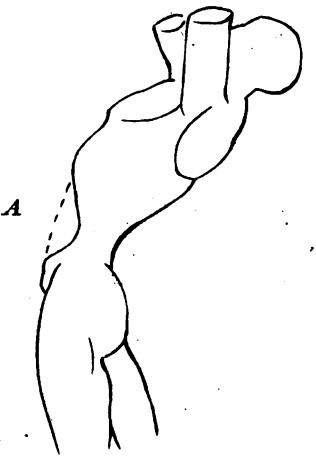


Fig. 9



When the child succeeds in drawing these angles and features well, it should be taught to make the three ovals, 1, 2, 3, first figures of this part; after which, the features, eyes, nose, and mouth, one line at a time, should be added, each in a separate drawing of the oval, in front view and profile, until the whole is completed, as in Figs. 4, 5, this Part.

FACE. — *Three-quarter View.* Pl. 32.

Fig. 1. Front of nose.

2. Front and end, A.

3. The same, with circle for outer eyebrow, B.

4. The same, with larger circle for inner eyebrow, C; this being higher and longer than the outer circle, B.

5. The same, with first line of upper lid, D; and outline of iris, E. The line for the inner corner of the outer eye should touch the outer line of the nose. The outer end of the outer eyebrow should project beyond the outer corner of the eye. The inner eye, a three-quarters' view, should be two-thirds the whole length of an eye in front view. The inner corner of inner eye should be two-thirds the length of an eye, in front view, from the outer line of the nose, where it is touched by the outer eye. The inner and outer corners of the inner eyebrow should project beyond the inner and outer corners of the inner eye.

6. The same, with under line of nostril, E. Notice that the end of the nose projects as far as the centre of the outer eye, W, W.

7. The same, with vertical line of nostril, G; and oval

cavity in centre of upper lip, H. The nostril should extend nearly as far back as the inner corner of the inner eye.

8. The same, with upper lip; the outer section of which is less than the inner.

9. The same, with under lip; the outer section of which is less than the inner. The outer corner of the mouth should not project beyond the end of the nose. One-half the inner half of the mouth should project beyond the nostril, J, J.

10, Pl. 33. The same, with outline of forehead, K; and cheek, L: the outline of the forehead terminating opposite the outer corner of the outer eye; the outline of cheek beginning at that point, and terminating a little below the under lip.

11. The same, with outline of chin and inferior angle of jaw, M; and superior angle of jaw, N.

12. The same, with cerebral circle, *O;* ear, *P;* and line for the front and back of the neck, *q*, *q*.

In three-quarter heads, all the vertical elements of heads in front view remain the same.

Hand. Pl. 33.

Fig. 1. Palm of hand.

2. Side of hand.

3. Back of hand.

The thumb has but two free joints (see Figs. 1, 2, and 3; Nos. 1, 2, and 4).

The fingers have three free joints (see Figs. 1, 2, 3; Nos. 1, 2, 3).

Fig. 10

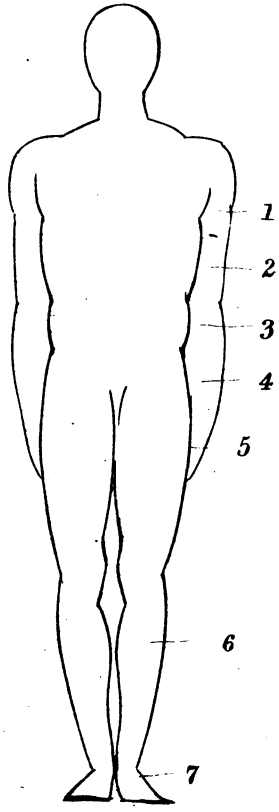


Fig. 11

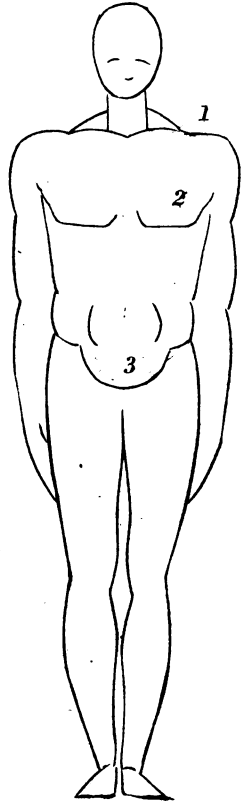


Fig. 12

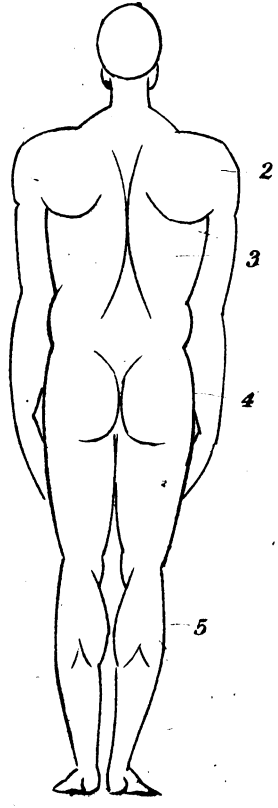
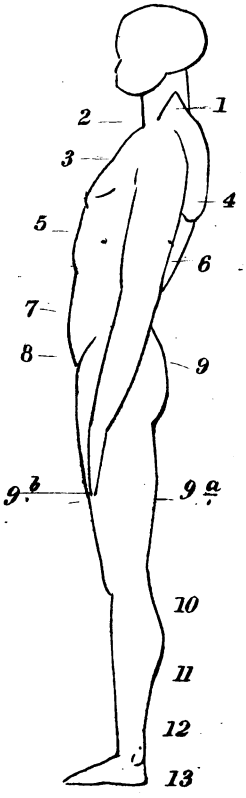


Fig. 13.



Part 4. Head

Fig. 1

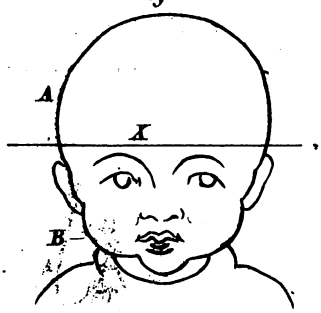


Fig. 2

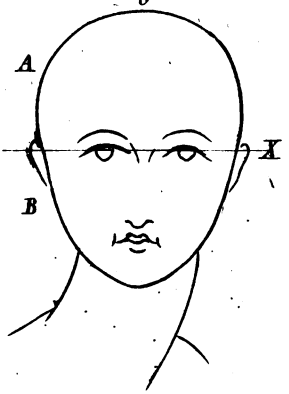


Fig. 3.

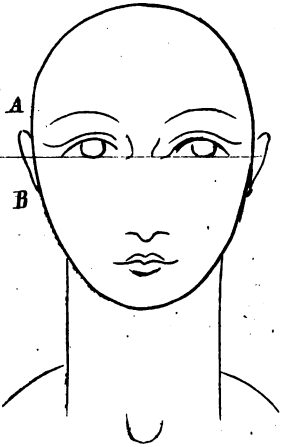
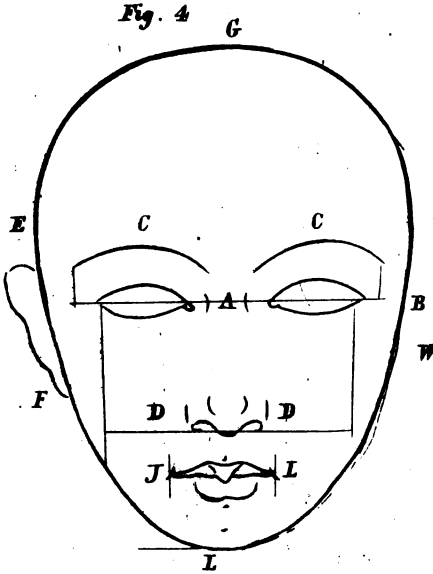
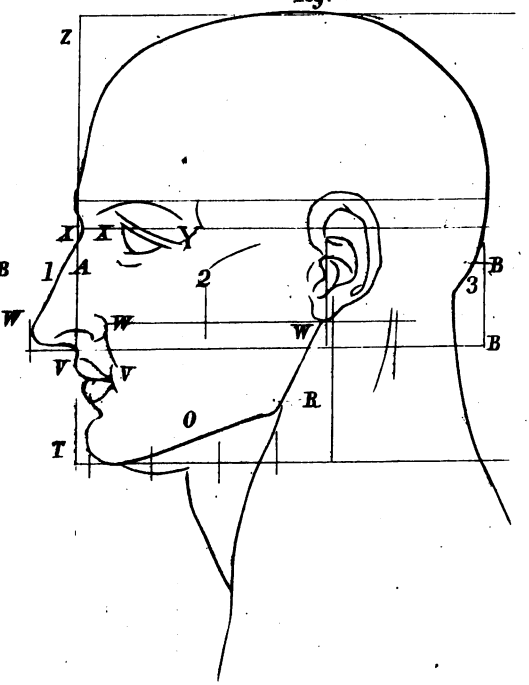


Fig. 4



Profile.

Fig. 5



The first joint of each finger, No. 1, as seen in Fig. 1, is partly covered by the front section of the palm of the hand (A, A, Figs. 1 and 3), when the back of the hand is seen (Fig. 3). The first joint of each finger covers the palm of the hand (A, Fig. 3), extending nearly as far back from the palmer line, A, to the joint, H, as it extends forward from the same line to C, the second joint; thus making the palm of the hand (A, D, Fig. 1) longer than the back by the quantity from A to H (Fig. 3).

The thumb should extend a little beyond the palm line, A, Fig. 1.

The convexity of the palm line should be greatest opposite the middle finger; from which point it should extend obliquely backward, as in Fig. 1.

The first joint, No. 1 (Figs. 1, 2), should be nearly twice as long as the second, No. 2; and the second nearly twice as long as the third, No. 3.

The hand, from the end of the finger, E, Fig. 3, to the wrist, D, should be twice as long as it is wide. The middle of the hand, B, should be half-way between A and H, Fig. 3. The middle finger should be longest. The fore and third finger should be of equal length. The little finger should be three-fourths as long as the third finger.

This section, X, Fig. 2, and lower outline, No. 1, is that between A and B, Figs. 1 and 3, and is alterable, as in Fig. 4, X; making, for the first joint, a double palmer section, X, L, Fig. 4.

Exercises. Figs. A, B, C, D, Pl. 33; and E, F, G, H, Pl. 34.

FOOT. Pl. 34.

Fig. 3. The inner ankle, A, is higher than the outer, B. The inner ankle, A, is above the instep, C.

Figs. 2, 3. The outer, D, Fig. 4, is below the instep, C, Pl. 35; tarsal section, C, Figs. 2 and 4; metatarsal section, E, Figs. 2 and 4; toes, F, Figs. 2 and 4.

Fig. 3. From 1 to 2, cavity under inner ankle; 2 to 3, inner tarsal bones; 3 to 4, inner metatarsal plane; 6, inner ball of foot; 7, outer ball of foot; 8 to 9, outer metatarsal section; 9 to 10, muscular section, covering outer tarsal section (see X, Fig. 4); 10 to B, cavity under outer ankle; 7 to 11, Fig. 3, upper line of toes; 12 to 13, terminal line of toes (see also same section, Fig. 1). Observe that the toes decrease in length from 13 to 12; 14, line of leg; 15, line of foot.

Figs. 2 and 4. 1, upper heel; 2, lower heel; 3, 4, narrowest part of ankle. Fig. 4, 6, tendon of anterior tibial muscle. Notice that, in Fig. 1, the sole of the foot covers the first joint of the toes. Compare this section with the same in Fig. 3, and with the corresponding parts of the hand. Observe that the greatest anterior projection of the sole of the foot is between the first and second toes. Compare the sole of the foot with the palm of hand. H, Fig. 2, inner line of sole; I, outer line of sole, Fig. 4; 4 to 6, ball of great toe, Fig. 2; K, Fig. 4, ball of little toe; Fig. 5, Pl. 34, plan of direction of toes.

Fig. 1.

Fig. 2

Fig. 3.

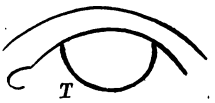


Fig. 4

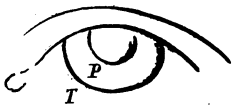


Fig. 5

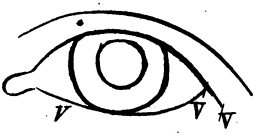


Fig. 6.

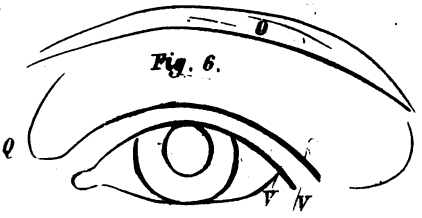
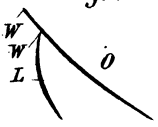


Fig. 7



Eye in Profile.

Fig. 8

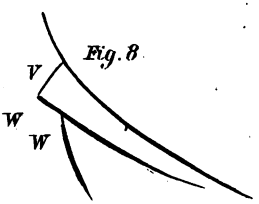


Fig. 9.

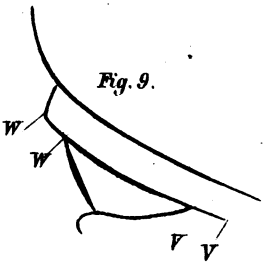
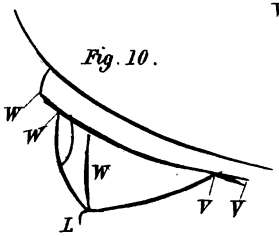


Fig. 10.



Mouth

Fig. 1.

Fig. 2.

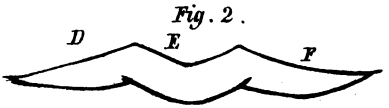
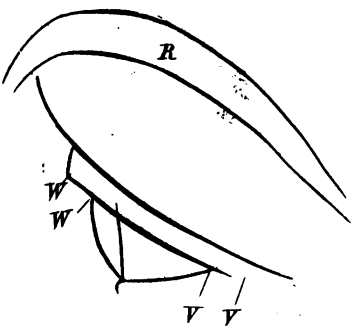


Fig. 3.

Fig. 11.



Profile

Fig. 4.

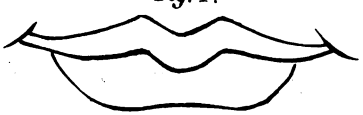
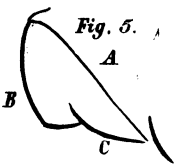


Fig. 5.



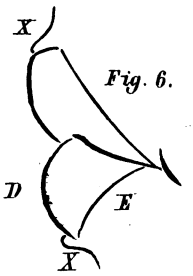
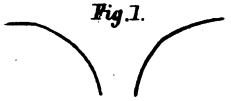


Fig. 1.



Nose. front view.

Fig. 2

Fig. 3.

Fig. 5.

Fig. 6.

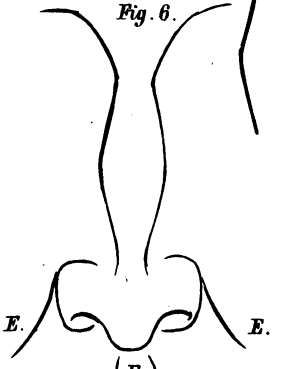


Fig. 4.

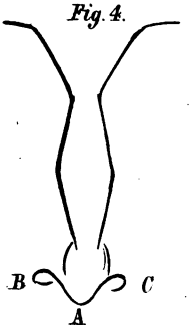
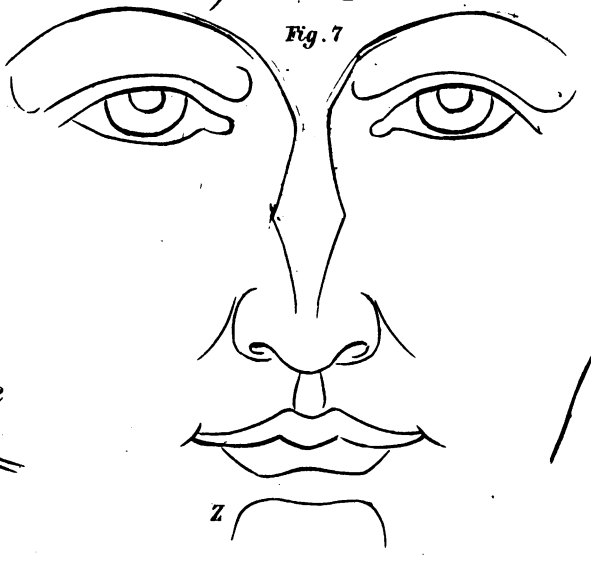


Fig. 7



Nose profile

Fig. 1.

Fig. 2

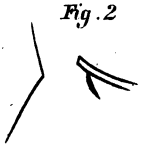


Fig. 3.

Exercises. Pl. 35, A, B, C, D, E, F, G, H.

A, profile; B, front view; C, back view; D, side view, foot extended; E, side view, foot flexed; F, three-quarter view, front; G, three-quarter view, behind; H, soles of feet.

These must be given, one section at a time, as in previous examples.

Expression. Pl. 36.

Plan 1. The latent face, all lines horizontal.

Plan 2. Pleasure, mirth, laughter, all lines elevated at the outer corner.

Plan 3. Sorrow, suffering, pain, agony, all lines depressed at the outer corner.

Plan 4. Dislike, anger, hate, malignity, rage, fury, — eyebrows depressed at the inner corner, eyes horizontal from beneath them, nostrils elevated at outer corner, mouth depressed at outer corner.

Proceed to instruct the pupil, one element at a time, as in the succeeding illustration (Plan 2^1, 2^2, 2^3, 2^4, &c.): —

Plan 1, 2, 3, 4. Lines of expression in profile.

Fig. 4.

Fig. 5

Fig. 6.

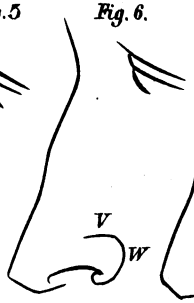


Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10

Fig. 11.

Head.

Fig. 2.

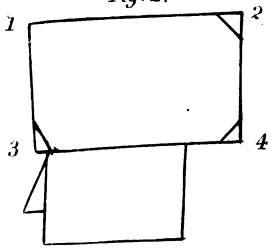


Fig. 3.

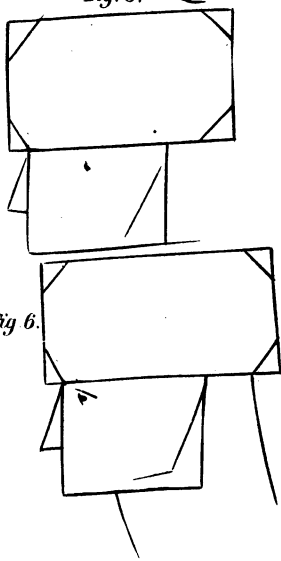


Fig. 5.

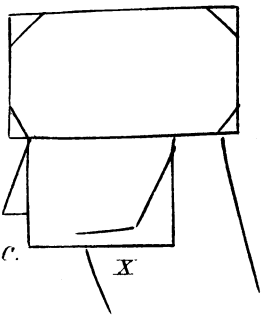


Fig 6.

Fig.1

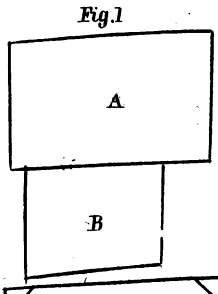
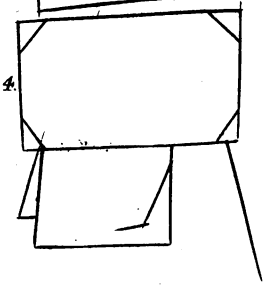


Fig.4.



The Ear.

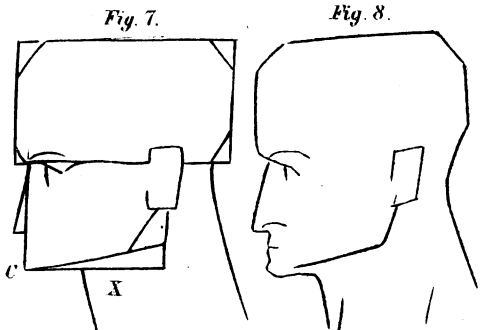


Fig. 7.
C
X

Fig. 8.

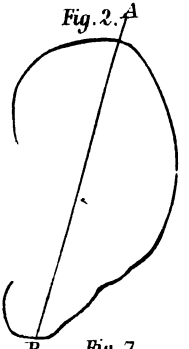


Fig. 2.
A
B

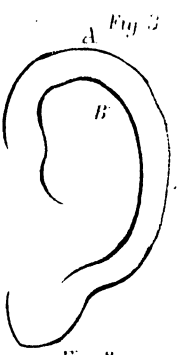


Fig 3
A
B

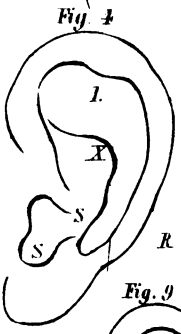


Fig. 4
1.
X
S
S
R

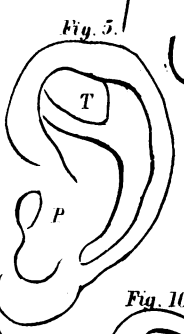


Fig. 5.
T
P

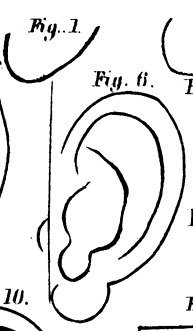


Fig. 1.
Fig. 6.
Plan

Fig. 7.

Fig. 8

Fig. 9

Fig. 10.

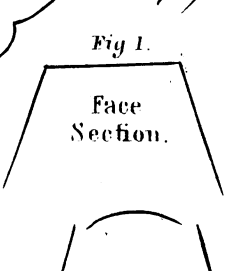


Fig 1.
Face
Section.

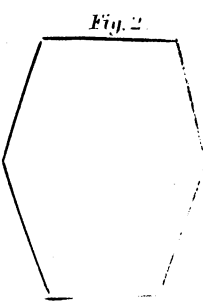


Fig. 2

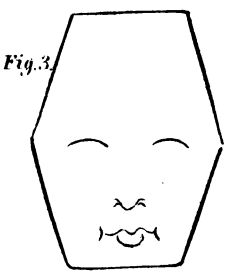


Fig. 3.

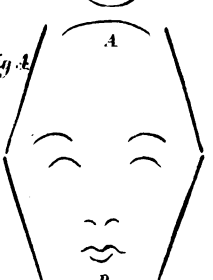


Fig. 4
A
B

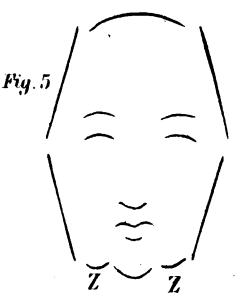


Fig. 5
Z
Z

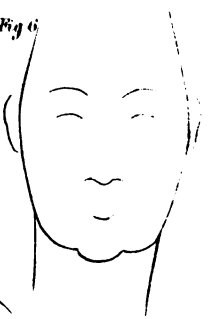


Fig 6

Fig. 1

Fig 2

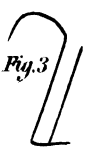


Fig. 3

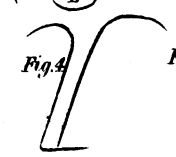


Fig. 4

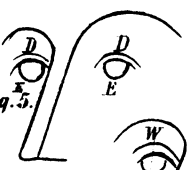


Fig. 5.
D
D
E

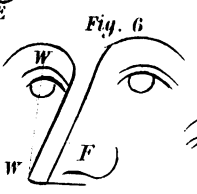


Fig. 6
W
W
F

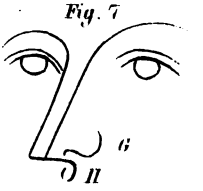


Fig. 7
G
H

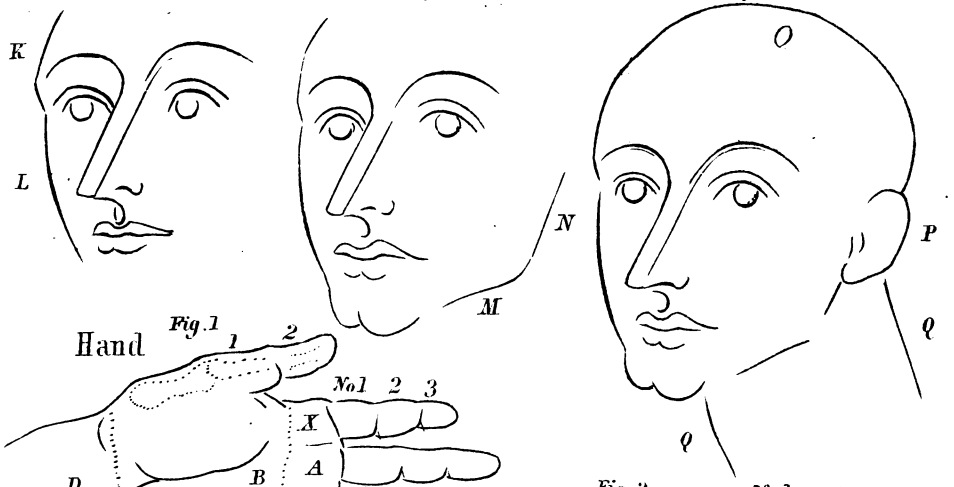
Fig. 8.

Fig. 9.
J
J

Fig. 10

Fig. 11.

Fig. 12



Hand

Fig. 1

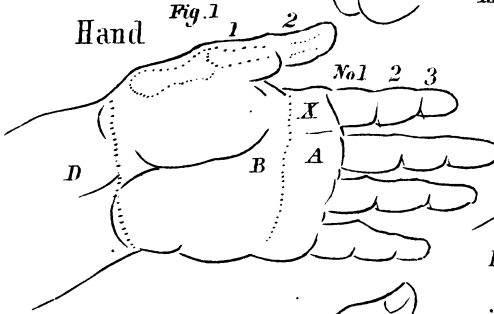


Fig. 2

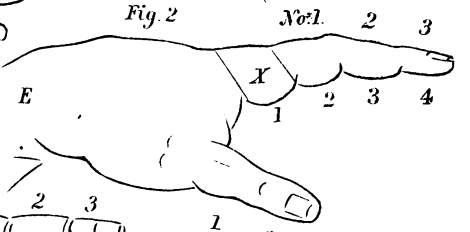
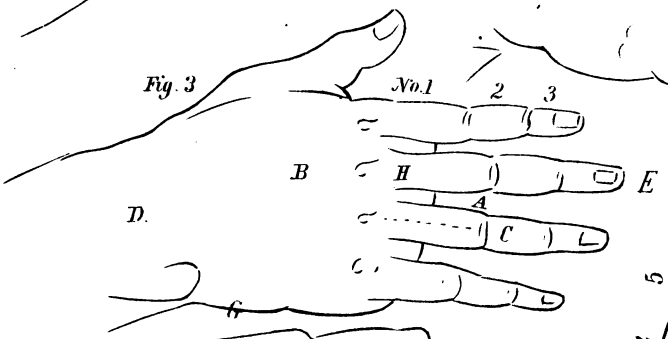


Fig. 3



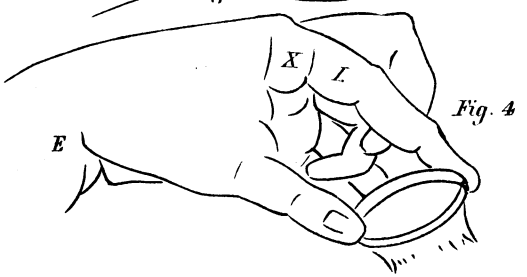
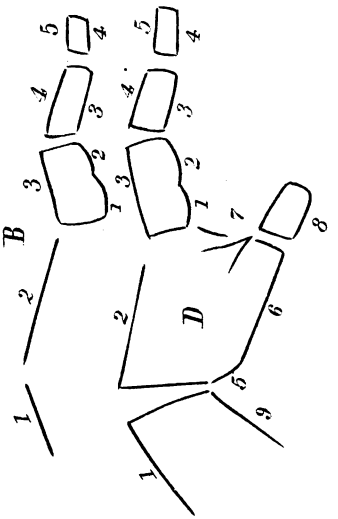
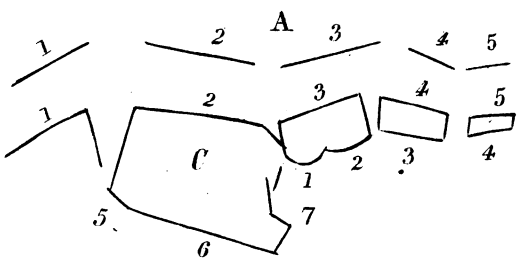
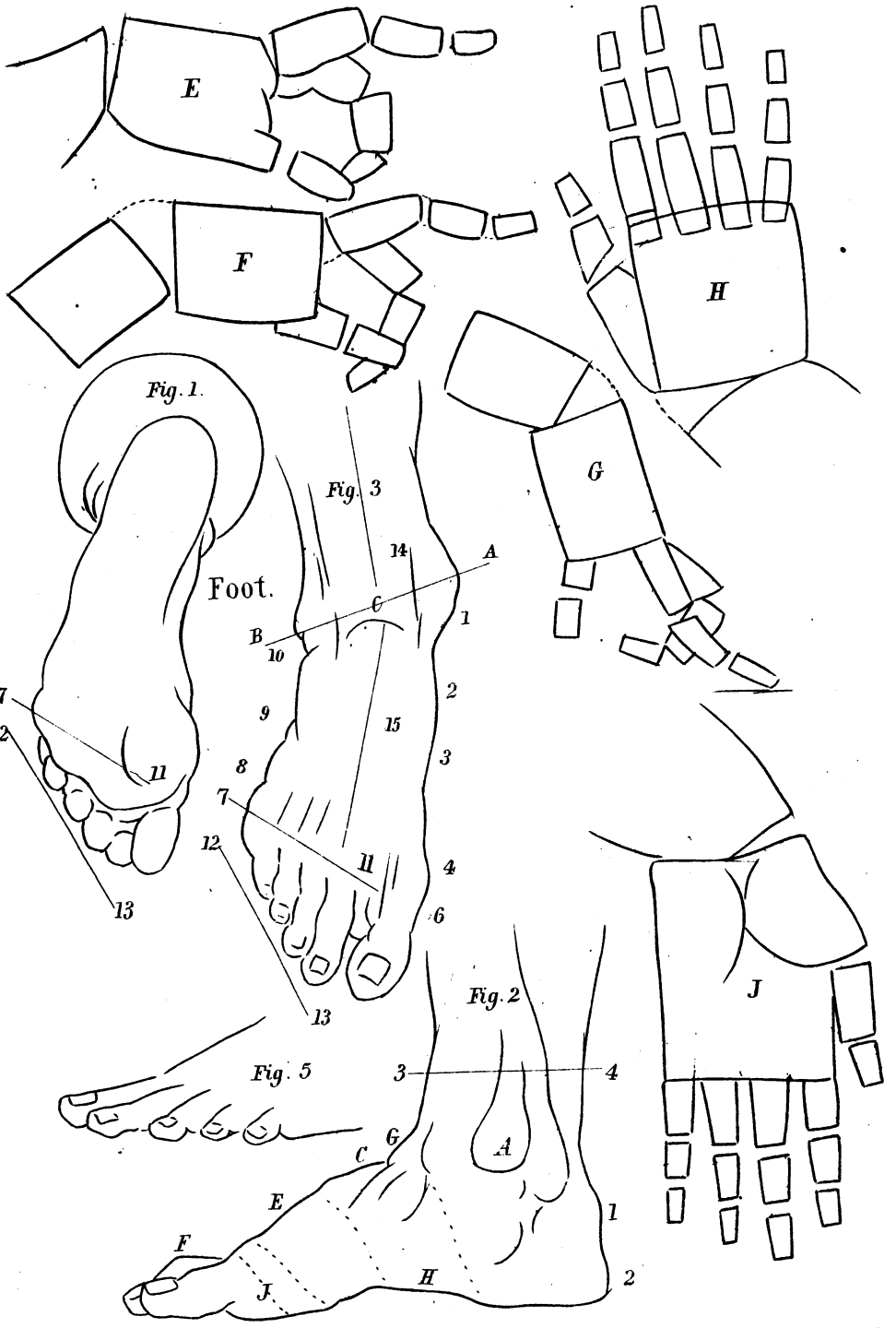


Fig. 4






E
F
H
G
Fig. 1.
Fig. 3
Foot.
A
14
C
1
B
10
2
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8
7
11
4
12
6
13
Fig. 2
J
Fig. 5
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4
G
C
A
E
1
F
H
J
2

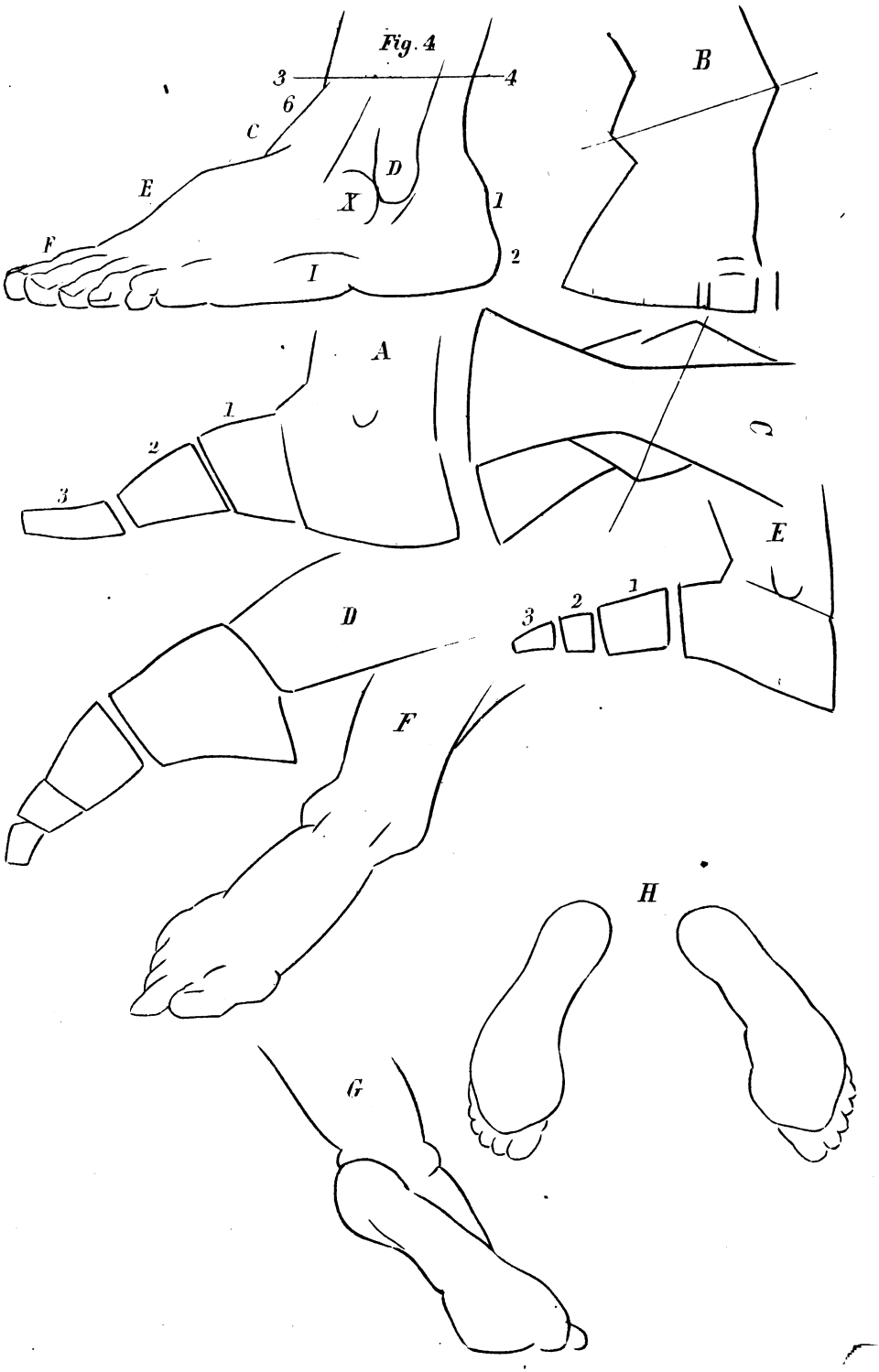
Fig. 4
3
4
6
C
E
D
X
1
2
F
I
B
A
1
2
3
C
E
D
3
2
1
F
H
G

Expression.

Plan. 1st

Plan 2d

Plan 3d

Plan 4th

Plan 2 1

Plan 3 1

Plan 4 1

Plan 2 2

Plan 3 2

Plan 4 2

Plan 2 3

Plan 3 3

Plan 4 3

Plan 2 4

Lines of expression in profile.

Plan 1st

Plan 2d

Plan 3d

Plan 4th